INJURY EXPERIENCE IN THE METAL AND NONMETAL INDUSTRIES, 1954

DETAILED ANALYSIS OF SAFETY FACTORS AND RELATED EMPLOYMENT DATA; AND UNPUBLISHED STATISTICS FOR 1943-53

BY JOHN C. MACHISAK, NAOMI W. KEARNEY, AND ELIZABETH DIXON

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by

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INTRODUCTION AND SUMMARY

Statistical data on injuries in the metal and nonmetal industry of the United States first became available to the Bureau of Mines by collecting reports from the operators for the calendar year 1911. Since then reports have been collected annually. The present bulletin, covering the calendar year 1954, is the 31st publication (1933-34 was published as Bulletin 398) containing statistical data on injuries at metal and nonmetal mines and related plants, and it is the first such bulletin to be published since 1942. The last publication was Bulletin 461, Metal and Nonmetal-Mine Accidents in the United States, 1942. The unpublished statistics for 1943-53 may be found in the Appendix of this bulletin.

The Bureau of Mines is authorized to collect data on injuries and related employment at metal and nonmetal mines, but there is no Federal law that compels operators to submit such information. Therefore, all materials submitted are voluntary responses to the Bureau's requests for information. The figures presented herein may not be complete for the entire industry, nevertheless, every effort has been made to make them so, and the data given are believed to be representative of the hazards to which metal and nonmetal workers are exposed. Moreover, the figures are comparable as between States-which is significant in view of the lack of uniformity among the States as regards classes of plants covered by State laws, classes of injuries covered by State reports, and other factors that tend to make it impracticable or impossible to compare the injury experience of one State with that of another or comprehend the relative importance of the various causes of injuries in the industry as a whole.

The metal mines covered by this report have been classified according to the kind of metal produced, as follows: Copper, gold-silver lode, iron, lead-zinc, and miscellaneous metals. Nonmetal mining includes feldspar-mica-quartz, fluorspar, gypsum, magnesite, phosphate rock, potash, salt, sulfur, and others. The tables in this bulletin represent all phases of the metal and nonmetal mining industry.

From 1911 to 1914, inclusive, the Bureau's classification of nonfatal injuries covered two groups - "serious" injuries, disabling a workman for more than 20 days, and "slight" injuries, causing disability not exceeding 20 days but longer than the remainder of the day of injury. From 1915 to 1929, inclusive, a "serious" injury as used in the Bureau reports, signified, in addition to a permanent disability, a temporary injury that disabled an employee more than 14 days.

Beginning in 1930, all temporary injuries have been included in a single group, which comprises all temporary injuries causing disability for more than the remainder of the day on which the injury occurred.

All injury rates shown in this publication have been calculated upon the basis of a million man-hours of employment or exposure to risk.

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The injury data and experience at metal and nonmetal mines in the United States and Alaska for 1954, are presented in this circular under the following general sections:

(A) General injury experience:

Tables 1 to 4: Contain current data on the number of injuries, injury-frequency rates, related employment data, agency, location, and degree of injury.

(B) Injury experience at different kinds of mines:

Tables 5 to 9: Contain current data on number of injuries, injury-frequency rates, related employment, by location, agency, and degree of injury in the metal and nonmetal industry including metallurgical plants.

(C) Injury experience by States:

Tables 10 to 19: Contain current data on the number of injuries, injury-frequency rates, and related employment, by location, agency, and degree of injury.

(D) Selected injury data:

Tables 20 to 27: Contain current data and injury experience at miscellaneous metal mines, nonmetal mines, by commodity. Injury experience at clay mines, at placer mines, and at metal and nonmetal mines by mining method.

(E) Historical injury experience:

Table 28: Contains employment and injury data on metal and nonmetal mines, 1911-54.

(F) Appendix:

Tables 29 to 43: Contain certain injury and employment data that have not been published heretofore (1943-53).

ACKNOWLEDGMENTS

The Bureau of Mines gratefully acknowledges the cooperation of the metal and nonmetal mine operators throughout the United States and Alaska, whose voluntary reports of injuries and employment form the basis of the tables in this circular.

GENERAL INJURY EXPERIENCE IN 1954

The injury experience of the metal and nonmetal mining industries in the United States and Alaska was more favorable in 1954 than at any time since complete records of injuries first became available. The combined injury-frequency rate was lower and therefore better than in any year since 1931, the first year for which complete and comparable figures are available. Although operating companies began to furnish reports to the Bureau of Mines in 1911, the reports for that year and for the next several years were somewhat incomplete as to the number of injuries reported, especially slight injuries causing 1 or 2 days of disability.

The metal- and nonmetal-mining industries reported a smaller volume of employment in 1954 than in 1953. Reports from the operating companies showed decreases

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in the number of men employed and in the number of man-days and man-hours of employment. The decrease in employment was accompanied by a 17-percent decrease in the number of fatal injuries reported and a 22-percent decrease in the number of nonfatal injuries. The combined (fatal and nonfatal) frequency rate of 37.77 injuries per million man-hours of employment for 1954 represented an 8-percent improvement over the corresponding rate of 41.14 for 1953.

Reports for 1954 were received from 3,321 active operations. The working force averaged 79,420 men for 251 days per man, and the total period of employment for all the men was 160,052,471 man-hours. Each employee averaged 2,015 hours of work during the year.

Injuries to employees while at work resulted in 95 deaths and 5,950 nonfatal injuries, including 11 permanent total, 282 permanent partial, and 5,657 temporary total disabilities lasting longer than the remainder of the day on which the injuries occurred. The number of deaths indicated a fatality rate of 0.59 per million man-hours; the rate for 1953 was 0.61. Nonfatal injuries occurred at the rate of 37.18 per million man-hours, compared with 40.53 in 1953.

Although 95 men were killed at the 3,321 mines that were operated in 1954, reports from the operators indicated that nearly all the reporting companies were fatality free, as all 95 fatalities occurred at 158 plants. The number of companies with no fatalities during the year was 3,163. The fatality-free operations employed 61,533 men daily out of a total of 79,420 employed at all plants, or 77 percent of the total. The fatality rate for the entire industry was 0.59 per million man-hours, whereas that for the 158 plants at which all fatalities occurred was 2.41 per million man-hours. Thus, the low rate for the industry as a whole was due to the large number of mines that had no fatalities. The mines at which fatalities occurred were generally the larger operations, as they averaged 113 men per mine, while the fatality-free operations averaged 19 men per mine. The mines at which no fatalities occurred had a relatively favorable rate of 34.29 for nonfatal injuries, compared with a rate of 45.98 for plants that had fatalities.

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General Injury Data, 1954

TABLE 1. - Salient statistics on injuries, injury rates, and employment in the metal industries of the United States and Alaska, 1950-54

	1950	1951	1952	1953	1954
Number of injuries:					
Fatal	84	95	117	92	86
Nonfatal:					
Permanent total	3	3	10	-	9
Permanent partial	274	231	298	287	231
Temporary	6,334	6,590	6,376	5,877	4,754
Total nonfatal	6,611	6,824	6,684	6,164	4,994
Grand total	6,695	6,919	6,801	6,256	5,080
Injury-frequency rates, per million man-hours:					
Fatal	0.57	0.60	0.74	0.59	0.66
Nonfatal	44.74	42.81	42.13	39.36	38.27
Total	45.31	43.41	42.87	39.95	38.93
Number of active mines	2,599	2,857	2,750	2,740	2,700
Number of men working daily	68,292	71,603	74,626	72,529	66,610
Average number of active days	271	278	265	270	245
Man-days worked	18,522,095	19,913,318	19,770,257	19,559,252	16,293,664
Man-hours worked	147,764,681	159,417,308	158,648,566	156,604,937	130,488,488
Average number of hours per man-day	7.98	8.01	8.02	8.01	8.01
Average number of hours per man-year	2,164	2,226	2,126	2,159	1,959

TABLE 2. - Salient statistics on injuries, injury rates, and employment in the nonmetal industries of the United States, 1950-54

	1950	1951	1952	1953	1954
Number of injuries:					
Fatal	19	17	14	22	9
Nonfatal:					
Permanent total	-	1	-	1	2
Permanent partial	24	31	27	53	51
Temporary	1,214	1,319	1,144	1,365	903
Total nonfatal	1,238	1,351	1,171	1,419	956
Grand total	1,257	1,368	1,185	1,441	965
Injury-frequency rates per million man-hours:					
Fatal	0.67	0.56	0.48	0.72	0.30
Nonfatal	43.51	44.84	40.44	46.54	32.34
Total	44.18	45.40	40.92	47.26	32.64
Number of active mines	521	446	494	626	621
Number of men working daily	11,977	12,500	12,447	12,765	12,810
Average number of active days	293	298	288	292	284
Man-days worked	3,512,094	3,728,821	3,588,289	3,727,298	3,637,783
Man-hours worked	28,455,936	30,130,424	28,954,402	30,488,130	29,563,983
Average number of hours per man-day	8.10	8.08	8.07	8.18	8.13
Average number of hours per man-year	2,376	2,410	2,326	2,388	2,308

TABLE 3. - Comparative fatal- and nonfatal-injury data for metal and nonmetal mines in the United States and Alaska, 1954

	Mines with fatal injuries	Mines without fatal injuries	All metal and nonmetal mines
Number of mines	158	3,163	3,321
Average number of men employed	17,887	61,533	79,420
Average number of men per mine	113	19	24
Percentage of total employees	22.52	77.48	100.00
Days active	275	244	251
Man-days worked	4,922,848	15,008,599	19,931,447
Percent of total man-days	24.70	75.30	100.00
Man-hours worked	39,448,284	120,604,187	160,052,471
Percent of total man-hours	24.65	75.35	100.00
Average hours worked per man per year	2,205	1,960	2,015
Fatalities	95	-	95
Nonfatal injuries	1,814	4,136	5,950
Fatality rate per million man-hours	2.41	-	.59
Nonfatal rate per million man-hours	45.98	34.29	37.18

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TABLE 4. - Number and percentage distribution of injuries at metal and nonmetal mines in the United States, by location, agency, and degree of injury, 1954

Location and accident agency	Fatal	Permanent total[1]	Permanent partial[2]	Temporary[3]	Total nonfatal	Total fatal and nonfatal	Fatal: Percent: Grand total	Fatal: Percent: Class total	Fatal: Frequency rate: Grand total	Fatal: Frequency rate: Class total	Nonfatal: Percent: Grand total	Nonfatal: Percent: Class total	Nonfatal: Frequency rate: Grand total	Nonfatal: Frequency rate: Class total
Underground:														
Fall of rock or ore from roof or wall	21	1	38	694	733	754	22.11	33.33	.13	.27	12.32	16.10	4.58	9.33
Handling rock or ore	3	1	11	310	322	325	3.16	4.76	.02	.04	5.41	7.07	2.01	4.10
Handtools	1	-	6	266	272	273	1.05	1.59	.01	.01	4.57	5.98	1.70	3.46
Explosives	4	1	3	36	40	44	4.21	6.35	.02	.05	.67	.88	.25	.51
Haulage	9	2	36	473	511	520	9.47	14.29	.06	.11	8.59	11.23	3.19	6.50
Falling down chute, winze, raise, or stope	6	-	7	123	130	136	6.32	9.52	.04	.08	2.19	2.86	.81	1.65
Other falls of persons	-	-	10	305	315	315	-	-	-	-	5.29	6.92	1.97	4.01
Run of ore from raise, chute, or pocket	7	2	9	173	184	191	7.37	11.11	.04	.09	3.09	4.04	1.15	2.34
Drilling	-	-	17	457	474	474	-	-	-	-	7.97	10.41	2.96	6.03
Electricity	1	-	-	30	30	31	1.05	1.59	.01	.01	.50	.66	.19	.38
Machinery (other than locomotives or drills)	1	-	17	238	255	256	1.05	1.59	.01	.01	4.29	5.60	1.59	3.25
Mine fires	-	-	-	2	2	2	-	-	-	-	.03	.04	.01	.03
Suffocation from natural gases	2	-	-	7	7	9	2.11	3.17	.01	.03	.12	.15	.04	.09
Stepping on nail	-	-	1	48	49	49	-	-	-	-	.82	1.08	.31	.62
Handling materials (other than rock or ore) and equipment	1	-	22	609	631	632	1.05	1.59	.01	.01	10.61	13.86	3.94	8.03
Other causes	7	2	10	585	597	604	7.37	11.11	.04	.09	10.03	13.12	3.73	7.60
Total underground	63	9	187	4,356	4,552	4,615	66.32	100.00	.39	.80	76.50	100.00	25.44	57.95
Shaft:														
Falling down shaft	4	-	1	4	5	9	4.21	44.44	.02	.05	.09	6.58	.03	.06
Objects falling down shaft	-	-	1	17	18	18	-	-	-	-	.30	23.68	.11	.23
Breaking of cables	-	-	1	-	1	1	-	-	-	-	.02	1.32	.01	.01
Overwinding	-	-	1	-	1	1	-	-	-	-	.02	1.32	.01	.01
Cage, skip, or bucket	5	-	4	26	30	35	5.26	55.56	.03	.06	.50	39.47	.19	.38
Other causes	-	-	1	20	21	21	-	-	-	-	.35	27.63	.13	.27
Total shaft	9	-	9	67	76	85	9.47	100.00	.06	.11	1.28	100.00	.47	.97
Total underground and shaft	72	9	196	4,423	4,628	4,700	75.79	100.00	.45	.92	77.78	100.00	28.52	58.91
Surface:														
Mine cars, mine locomotives, or aerial trams	-	-	-	13	13	13	-	-	-	-	.22	1.96	.08	.38
Railway cars and locomotives	1	-	1	3	4	5	1.05	50.00	.01	.03	.07	.60	.02	.12
Run or fall of ore in or from ore bins	-	-	-	14	14	14	-	-	-	-	.24	2.11	.09	.41
Falls of persons	-	-	6	88	94	94	-	-	-	-	1.58	14.16	.59	2.74
Stepping on nail	-	-	-	5	5	5	-	-	-	-	.08	.75	.03	.15
Handtools	-	-	2	48	50	50	-	-	-	-	.84	7.53	.31	1.46
Electricity	-	-	-	8	8	8	-	-	-	-	.13	1.20	.05	.23
Machinery (incl. placer dredging)	-	-	22	83	105	105	-	-	-	-	1.76	15.81	.66	3.06
Handling materials and equipment	1	-	14	162	176	177	1.05	50.00	.01	.03	2.96	26.51	1.10	5.13
Other causes	-	-	4	191	195	195	-	-	-	-	3.28	29.37	1.22	5.68
Total surface	2	-	49	615	664	666	2.11	100.00	.01	.06	11.17	100.00	4.15	19.39
Total underground, shaft, and surface	74	9	245	5,038	5,292	5,366	77.89	100.00	.46	.66	88.94	100.00	33.06	46.38
Opencut:														
Falls or slides of rock or ore	3	-	4	32	36	39	3.16	14.29	.02	.06	.60	5.47	.22	.76
Explosives	5	-	2	5	7	12	5.27	23.81	.03	.11	.12	1.06	.04	.15
Haulage	4	1	3	60	64	68	4.21	19.05	.02	.08	1.08	9.73	.40	1.36
Power shovels	1	1	5	37	43	44	1.05	4.76	.01	.02	.72	6.53	.27	.91
Falls of persons	1	-	2	97	99	100	1.05	4.76	.01	.02	1.66	15.05	.62	2.10
Falls of derricks, booms, etc.	-	-	1	4	5	5	-	-	-	-	.08	.76	.03	.11
Run or fall of ore in or from ore bins	-	-	-	4	4	4	-	-	-	-	.07	.61	.02	.08
Machinery (other than locomotives or power shovels)	5	-	8	80	88	93	5.27	23.81	.03	.11	1.48	13.37	.55	1.87
Electricity	1	-	-	14	14	15	1.05	4.76	.01	.02	.24	2.13	.09	.30
Handtools	-	-	3	66	69	69	-	-	-	-	1.16	10.49	.43	1.46
Handling materials and equipment	-	-	7	107	114	114	-	-	-	-	1.92	17.33	.71	2.42
Other causes	1	-	2	113	115	116	1.05	4.76	.01	.02	1.93	17.48	.72	2.44
Total opencut	21	2	37	617	658	679	22.11	100.00	.13	.45	11.07	100.00	4.11	13.95
Total underground, shaft, surface, and opencut	9[illegible]	11	28[illegible]	[illegible],027	[illegible],950	[illegible],045	100.00	-	.09	-	100.00	-	37.18	-

1/ Permanent total disability: Loss of both legs or arms, 1 leg or arm, total loss of eyesight, paralysis, or other conditions permanently incapacitating workmen from doing any work of a gainful occupation.

2/ Permanent partial disability: Loss of 1 foot, leg, arm, hand, eye, 1 or more fingers, 1 or more toes, any dislocation where ligaments are severed, or any injury known in surgery to be a permanent partial disability.

3/ Temporary: Disability for more than remainder of day of accident.

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INJURY EXPERIENCE AT DIFFERENT KINDS OF MINES

Copper Mines

Accidents in and around copper mines resulted in 32 deaths and 1,115 nonfatal injuries. However, the overall (fatal and nonfatal) injury-frequency rate of 31.74 per million man-hours of work in 1954 was not influenced greatly by the increased number of fatal injuries reported. The rate for 1953 was 31.32. Although 7 more men lost their lives in 1954 (a 28-percent increase over the 25 reported killed in 1953), the nonfatal injuries were 97 less, a drop of 8 percent from the 1,212 reported in 1953. The average number of men working daily increased slightly, with a 10-percent drop in the number of days worked. Copper mines worked a straight 8-hour shift in 1954.

Iron Mines

Iron mines reported improvement in their safety record for 1954; the number of fatal and nonfatal injuries decreased 26 and 37 percent, respectively. The overall (fatal and nonfatal) frequency rate of 14.78 was 14 percent lower than the 17.20 rate recorded in 1953. Employment and the number of days worked also decreased. Iron mines worked an 8.02-hour shift per day in 1954, the same as that worked the previous year. The number of men working daily in 1954 was 27,840, a 10-percent decline from the 30,862 working in 1953.

Lead-Zinc Mines

The safety record for lead-zinc mines showed a marked improvement in 1954 over 1953. There were 11 fewer fatal injuries, and the nonfatal injuries were reduced by 714; the fatal injuries decreased 37 percent and the injury-frequency rate represented a 23-percent reduction.

Nonfatal injuries were reduced 33 percent; the corresponding injury-frequency decreased 19 percent. The average number of men working daily dropped to 10,755 in 1954 from the 13,503 reported in 1953. Eight more days were worked in 1954, and lead-zinc mines reported a straight 8-hour shift during the year.

Gold-Silver Lode Mines

The same number of fatal injuries was reported for 1954 as for 1953; injury-frequency rate for each year was approximately the same. Nonfatal injuries were 87 fewer than in the previous year, with a 95.87 injury-frequency rate per million man-hours of work, an 8-percent decrease from the 104.14 rate reported for 1953. The average number of men employed in 1954 decreased 6 percent; the man-days and man-hours declined slightly. The average number of days worked increased 3, and the mines worked an 8-hour shift during the year.

Gold-Placer Mines

The safety record for gold placer mining in 1954 improved, with 1 fatal and 84 nonfatal injuries reported. One fatal injury occurred in 1953; however, the nonfatal injuries decreased 55 percent from the 188 reported the previous year. The combined (fatal and nonfatal) injury-frequency rate improved sharply from the 42.97 rate in 1953 to 24.15 in 1954. The average number of men working daily decreased 21 percent - 2,049 men working in 1954 and 2,588 in 1953. The average days worked changed slightly; placer mines operated an 8-hour shift during the year.

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Miscellaneous Metal Mines

Reports from companies operating miscellaneous metal mines showed that 1,105 were active in 1954. Their safety record was not as good as that reported for the previous year. Three more men lost their lives in 1954 than in 1953, and there were 250 more nonfatal injuries. Employment increased to 6,880 men in 1954 from 6,468 in 1953, and man-days and man-hours increased 7 and 6 percent, respectively. One more day was worked in 1954 than in 1953, and the mines worked an 8.01-hour shift.

Nonmetal Mines

The injury experience at nonmetal mines was more favorable in 1954 than in 1953, with a 59-percent reduction in the number of workers killed (22 in 1953 and 9 in 1954). Likewise, the number of nonfatal injuries declined sharply from 1,419 in 1953 to 956 in 1954, a reduction of 33 percent. The combined (fatal and nonfatal) frequency rate fell from 47.26 in 1953 to 32.64 in 1954. Men working increased by 45; the 8.13-hour shift was approximately the same as that worked in 1953, with days active 8 fewer than in the previous year. Man-days and man-hours worked in 1954 declined slightly.

INJURY EXPERIENCE AT METALLURGICAL PLANTS

The metallurgical plants include ore-dressing plants and smelters (nonferrous reduction and refinery plants). The overall injury experience at metallurgical plants was more favorable in 1954 than in 1953, in spite of the fact that 4 more men were killed. The number of nonfatal injuries, however, declined 9 percent, as 2,578 occurred in 1954 compared with 2,824 in 1953. The combined (fatal and nonfatal) injury-frequency rate was not affected by the increased number of fatalities, since it revealed a 5-percent decrease. Employment dropped slightly, the men working 11 days less in 1954 than in 1953. Approximately the same length of shift was worked in each year. Data for 1954 metallurgical plants, including ore dressing plants and smelters, are available in tables 7, 8, and 9.

INJURY EXPERIENCE, BY STATES, 1954

The reports received from operators covering the States wherein 1,000 or more men were employed at metal and nonmetal mines in 1954 showed that 5 of the 20 States represented had no fatalities. These States, in order of their volume of employment, were: Texas, Missouri, Florida, Louisiana, and Tennessee. Five other States in this group had fatality rates more favorable than the average rate for the entire industry, and 14 States established nonfatal-injury rates lower than the industry average.

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TABLE 5. - Employment data and injury experience at all metal and nonmetal mines in the United States and Alaska, by mineral and location, 1954

Kind of mine	Number of active operations	Men at work				Average days active			
		Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Copper	177	7,080	2,367	6,628	16,075	270	273	295	281
Iron	286	11,866	5,064	10,910	27,840	212	237	221	220
Lead-zinc	384	8,993	1,674	88	10,755	256	258	224	256
Gold-silver lode	394	2,499	480	32	3,011	255	274	126	257
Placer	354	28	1,940	81	2,049	106	222	91	215
Miscellaneous metals	1,105	4,682	952	1,246	6,880	262	275	150	244
Nonmetal	621	4,399	3,412	4,999	12,810	275	339	254	284
Total, metal and nonmetal	3,321	39,547	15,889	23,984	79,420	248	268	244	251
Total, metal mines	2,700	35,148	12,477	18,985	66,610	245	249	242	245

Kind of mine	Number of active operations	Number of injuries							
		Fatal				Nonfatal			
		Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Copper	177	21	-	11	32	847	52	216	1,115
Iron	286	7	1	6	14	464	70	179	713
Lead-zinc	384	19	-	-	19	1,333	88	-	1,421
Gold-silver lode	394	6	-	-	6	560	33	-	593
Placer	354	-	1	-	1	-	81	3	84
Miscellaneous metals	1,105	14	-	-	14	934	77	57	1,068
Nonmetal	621	5	-	4	9	490	263	203	956
Total, metal and nonmetal	3,321	72	2	21	95	4,628	664	658	5,950
Total, metal mines	2,700	67	2	17	86	4,138	401	455	4,994

Kind of mine	Number of active operations	Man-days worked				Man-hours worked			
		Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Copper	177	1,911,907	647,025	1,958,410	4,517,342	15,298,662	5,176,207	15,668,264	36,143,133
Iron	286	2,520,667	1,202,555	2,408,449	6,131,671	20,165,336	9,620,394	19,391,766	49,177,496
Lead-zinc	384	2,302,665	432,150	19,688	2,754,503	18,416,645	3,464,156	157,921	22,038,722
Gold-silver lode	394	637,521	131,724	4,038	773,283	5,100,029	1,053,344	32,066	6,185,439
Placer	354	2,972	429,954	7,363	440,289	21,794	3,438,884	58,904	3,519,582
Miscellaneous metals	1,105	1,227,563	261,933	187,080	1,676,576	9,837,441	2,090,251	1,496,424	13,424,116
Nonmetal	621	1,210,729	1,157,658	1,269,396	3,637,783	9,717,156	9,477,443	10,369,384	29,563,983
Total, metal and nonmetal	3,321	9,814,024	4,262,999	5,854,424	19,931,447	78,557,063	34,320,679	47,174,729	160,052,471
Total, metal mines	2,700	8,603,295	3,105,341	4,585,028	16,293,664	68,839,907	24,843,236	36,805,345	130,488,488

Kind of mine	Number of active operations	Injury rates per million man-hours							
		Fatal				Nonfatal			
		Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Copper	177	1.37	-	.70	.89	55.36	10.05	13.79	30.85
Iron	286	.35	.10	.31	.28	23.01	7.28	9.23	14.50
Lead-zinc	384	1.03	-	-	.86	72.38	25.40	-	64.48
Gold-silver lode	394	1.18	-	-	.97	109.80	31.33	-	95.87
Placer	354	-	.29	-	.28	-	23.55	50.93	23.87
Miscellaneous metals	1,105	1.42	-	-	1.04	94.94	36.84	38.09	79.56
Nonmetal	621	.51	-	.39	.30	50.43	27.75	19.58	32.34
Total, metal and nonmetal	3,321	0.92	0.06	0.45	0.59	58.91	19.35	13.95	37.18
Total, metal mines	2,700	.97	.08	.46	.66	60.11	16.14	12.36	38.27

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TABLE 6. - All mines: Number of injuries in metal and nonmetal mines, by location, agency, severity, and kind of mineral, 1954

Kind of mineral and severity of injury	Underground																	Shaft						Total underground and shaft
	Fall of rock or ore from roof or wall	Handling rock or ore while loading at working face	Handtools	Explosives	Haulage	Falling down chute, winze, raise, or stope	Other falls of persons	Run of ore from chute or pocket	Drilling	Electricity	Machinery (other than locomotives or drills)	Mine fires	Suffocation from natural gases	Inrush of water	Stepping on rail	Handling materials (other than item 2)	Other causes	Total underground	Falling down shaft	Objects falling down shaft	Breaking of cables	Overwinding	Cage, skip, or bucket	Other causes	Total shaft	
Total fatal and nonfatal:																										
Copper	153	37	45	13	101	18	55	47	87	7	48	-	-	-	11	129	106	857	2	5	-	-	-	4	11	868
Iron	86	23	25	1	42	16	56	24	44	4	24	-	-	-	1	59	59	464	-	2	-	-	5	-	7	471
Lead and zinc	198	122	82	5	152	37	85	46	172	7	47	-	4	-	14	187	149	1,307	5	9	1	1	18	11	45	1,352
Gold-silver	89	49	39	3	73	14	36	6	45	-	26	-	-	-	4	88	89	561	-	-	-	-	3	2	5	566
Placer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	160	71	50	12	93	39	63	54	98	1	56	2	2	-	14	101	123	939	1	-	-	-	7	1	9	948
Nonmetal	69	23	32	10	59	12	20	14	28	12	56	-	3	-	5	78	78	497	1	2	-	-	2	3	8	505
Total: 1954	754	325	273	44	520	136	315	191	474	31	255	2	9	-	49	631	604	4,625	9	18	1	1	35	21	85	4,710
1953	951	430	346	80	633	161	334	251	503	40	312	9	16	-	61	774	634	5,370	17	19	-	-	40	19	95	5,465
Change in 1954....percent	-20.7	-24.4	-21.1	-45.0	-17.9	-15.5	-5.7	-32.0	-5.8	-22.5	-17.9	-77.8	-43.8	-	-19.7	-17.3	-4.8	-13.9	-47.1	-5.3	+100.0	+100.0	-12.5	+10.5	-10.5	-13.9
Fatal:																										
Copper	6	1	-	2	7	2	-	2	-	-	-	-	-	-	-	-	-	20	1	-	-	-	-	-	1	21
Iron	2	-	-	-	-	2	-	2	-	1	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	7
Lead and zinc	6	1	1	-	-	2	-	2	-	-	-	-	-	-	-	-	3	15	2	-	-	-	2	-	4	19
Gold-silver	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1	5	-	-	-	-	1	-	1	6
Placer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	4	-	-	2	1	-	-	-	-	-	1	-	1	-	-	-	3	12	-	-	-	-	2	-	2	14
Nonmetal	2	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	4	1	-	-	-	-	-	1	5
Total	21	3	1	4	9	6	-	7	-	1	1	-	2	-	-	1	7	63	4	-	-	-	5	-	9	72
Total nonfatal:																										
Copper	147	36	45	11	94	16	55	45	87	7	48	-	-	-	11	129	106	837	1	5	-	-	-	4	10	847
Iron	84	23	25	1	42	14	56	22	44	3	24	-	-	-	1	59	59	457	-	2	-	-	5	-	7	464
Lead and zinc	192	121	81	5	152	35	85	44	172	7	47	-	4	-	14	187	146	1,292	3	9	1	1	16	11	41	1,333
Gold-silver	88	48	39	3	72	14	36	6	45	-	26	-	-	-	4	87	88	556	-	-	-	-	2	2	4	560
Placer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	156	71	50	10	92	39	63	54	98	1	55	2	1	-	14	101	120	927	1	-	-	-	5	1	7	934
Nonmetal	66	23	32	10	59	12	20	13	28	12	55	-	2	-	5	78	78	493	-	2	-	-	2	3	7	500
Total	733	322	272	40	511	130	315	184	474	30	255	2	7	-	49	631	597	4,562	5	18	1	1	30	21	76	4,638
Permanent total:																										
Copper	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	3
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead and zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1
Gold-silver	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	2
Placer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Nonmetal	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2
Total	1	1	-	1	2	-	-	2	-	-	-	-	-	-	-	-	2	9	-	-	-	-	-	-	-	9
Permanent partial:																										
Copper	9	2	-	1	6	2	-	1	5	-	2	-	-	-	-	1	1	30	-	-	-	-	-	-	-	30
Iron	6	4	1	-	5	-	2	3	4	-	4	-	-	-	-	4	2	35	-	-	-	-	1	-	1	36
Lead and zinc	9	2	3	-	11	1	3	1	4	-	2	-	-	-	1	9	3	49	-	1	1	1	2	-	5	54
Gold-silver	4	1	-	-	1	-	-	1	-	-	1	-	-	-	-	-	1	9	-	-	-	-	-	-	-	9
Placer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	7	2	1	-	8	4	4	3	4	-	7	-	-	-	-	5	1	46	1	-	-	-	1	1	3	49
Nonmetal	3	-	1	2	5	-	1	-	-	-	1	-	-	-	-	3	2	18	-	-	-	-	-	-	-	18
Total	38	11	6	3	36	7	10	9	17	-	17	-	-	-	1	22	10	187	1	1	1	1	4	1	9	196
Temporary:																										
Copper	138	33	45	9	87	14	55	44	82	7	46	-	-	-	11	128	105	804	1	5	-	-	-	4	10	814
Iron	78	19	24	1	37	14	54	19	40	3	20	-	-	-	1	55	57	422	-	2	-	-	4	-	6	428
Lead and zinc	183	119	78	5	141	34	82	43	168	7	45	-	4	-	13	178	142	1,242	3	8	-	-	14	11	36	1,278
Gold-silver	83	47	39	3	71	14	36	5	45	-	25	-	-	-	4	87	86	545	-	-	-	-	2	2	4	549
Placer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	149	69	49	10	83	35	59	51	94	1	48	2	1	-	14	96	119	880	-	-	-	-	4	-	4	884
Nonmetal	63	21	31	8	54	12	19	11	28	12	54	-	2	-	5	65	76	423	-	2	-	-	2	3	7	470
Total	694	310	266	36	473	123	305	173	457	30	238	2	7	-	48	609	585	4,316	4	17	-	-	26	20	67	4,423

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TABLE 6. - All mines: Number of injuries in metal and nonmetal mines, by location, agency, severity, and kind of mineral, 1954 (Con.)

Kind of mineral and severity of injury	Surface											Grand total underground, shaft, and surface	Opencut												Grand total
	Mine cars, locomotives, or aerial trams	Railway cars and locomotives	Run or fall of ore in or from bins	Falls of persons	Stepping on nail	Handtools	Electricity	Machinery	Handling materials	Other causes	Total surface		Falls or slides of rock or ore	Explosives	Haulage	Power shovels	Falls of persons	Falls of derricks, booms, etc.	Run or fall of ore in or from bins	Machinery (other than locomotives or power shovels)	Electricity	Handtools	Handling materials	Other causes	Total opencut	
Total fatal and nonfatal:																									
Copper	1	1	4	14	-	-	1	12	13	6	52	920	10	8	20	11	39	3	-	39	8	21	43	25	227	1,147
Iron	1	2	1	13	-	1	3	8	26	16	71	542	7	1	30	22	24	-	1	14	3	12	31	40	185	727
Lead and zinc	5	1	2	6	-	11	1	13	31	18	88	1,440	-	-	-	-	-	-	-	-	-	-	-	-	-	1,440
Gold-silver	-	-	1	-	-	1	-	2	16	13	33	599	-	-	-	-	-	-	-	-	-	-	-	-	-	599
Placer	-	-	-	11	-	9	-	12	16	34	82	82	-	-	-	-	-	-	-	3	-	-	-	-	3	85
Miscellaneous	4	1	5	9	3	14	2	10	13	16	77	1,025	5	-	3	4	5	-	-	11	-	10	7	12	57	1,082
Nonmetal	2	-	1	41	2	14	1	48	62	32	203	793	17	3	14	7	32	2	3	34	4	26	33	33	207	1,000
Total: 1954	13	5	14	94	5	50	8	105	177	135	607	5,426	39	12	67	44	100	5	4	99	15	69	114	110	677	6,345
1953	18	11	7	150	16	145	13	121	253	377	1,111	6,751	98	9	27	27	146	4	11	159	13	96	134	009	930	7,711
Change in 1954....percent	-27.8	-54.5	+100.0	-37.3	-68.8	-64.3	-38.5	-13.0	-30.0	-50.7	-45.7	-19.6	-38.8	+33.3	-9.7	+63.0	-31.5	+25.0	-63.6	-37.7	+15.4	-13.5	-14.9	-44.2	-27.2	-21.6
Fatal:																									
Copper	-	-	-	-	-	-	-	-	-	-	-	21	2	5	1	-	1	-	-	1	1	-	-	-	11	32
Iron	-	1	-	-	-	-	-	-	-	-	1	8	1	-	2	1	-	-	-	2	-	-	-	-	6	14
Lead and zinc	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-	-	-	19
Gold-silver	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Placer	-	-	-	-	-	-	-	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Nonmetal	-	-	-	-	-	-	-	-	-	-	-	5	-	-	1	-	-	-	-	2	-	-	-	1	4	9
Total	-	1	-	-	-	-	-	-	1	-	2	74	3	5	4	1	1	-	-	5	1	-	-	1	21	95
Total nonfatal:																									
Copper	1	1	4	14	-	-	1	12	13	6	52	899	8	3	19	11	38	3	-	38	7	21	43	25	216	1,115
Iron	1	1	1	13	-	1	3	8	26	16	70	534	6	1	28	21	24	-	1	12	3	12	31	40	179	713
Lead and zinc	5	1	2	6	-	11	1	13	31	18	88	1,421	-	-	-	-	-	-	-	-	-	-	-	-	-	1,421
Gold-silver	-	-	1	-	-	1	-	2	16	13	33	593	-	-	-	-	-	-	-	-	-	-	-	-	-	593
Placer	-	-	-	11	-	9	-	12	15	34	81	81	-	-	-	-	-	-	-	3	-	-	-	-	3	84
Miscellaneous	4	1	5	9	3	14	2	10	13	16	77	1,011	5	-	3	4	5	-	-	11	-	10	7	12	57	1,068
Nonmetal	2	-	1	41	2	14	1	48	62	32	203	793	17	3	14	7	32	2	3	34	4	26	33	33	207	1,000
Total	13	4	14	94	5	50	8	105	176	135	604	5,352	36	7	64	43	99	5	4	98	14	69	114	110	674	5,255
Permanent total:																									
Copper	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	1
Lead and zinc	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Gold-silver	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Placer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1	2	2
Nonmetal	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Total	-	-	-	-	-	-	-	-	-	-	-	9	-	-	1	1	-	-	-	-	-	-	-	-	2	11
Permanent partial:																									
Copper	-	1	-	-	-	-	-	4	1	-	6	36	-	2	-	2	-	-	-	3	-	1	3	1	12	48
Iron	-	-	-	2	-	-	-	2	2	-	6	42	1	-	2	2	1	-	-	1	-	1	3	1	12	54
Lead and zinc	-	-	-	-	-	1	-	2	4	-	7	61	-	-	-	-	-	-	-	-	-	-	-	-	-	61
Gold-silver	-	-	-	-	-	-	-	-	2	-	2	11	-	-	-	-	-	-	-	-	-	-	-	-	-	11
Placer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	1	-	2	1	-	4	53	1	-	1	1	-	-	-	1	-	-	-	-	4	57
Nonmetal	-	-	-	4	-	-	-	12	4	4	24	42	2	-	-	-	1	1	-	3	-	1	1	-	9	51
Total	-	1	-	6	-	2	-	20	14	4	49	245	4	2	3	5	2	1	-	8	-	3	7	2	37	282
Temporary:																									
Copper	1	-	4	14	-	-	1	8	12	6	46	860	8	1	19	9	38	3	-	35	7	20	40	24	204	1,064
Iron	1	1	1	11	-	1	3	6	24	16	64	492	5	1	25	19	23	-	1	11	3	11	28	39	166	658
Lead and zinc	5	1	2	6	-	10	1	11	27	18	81	1,359	-	-	-	-	-	-	-	-	-	-	-	-	-	1,359
Gold-silver	-	-	1	-	-	1	-	2	14	13	31	580	-	-	-	-	-	-	-	-	-	-	-	-	-	580
Placer	-	-	-	11	-	9	-	12	15	34	81	81	-	-	-	-	-	-	-	3	-	-	-	-	3	84
Miscellaneous	4	1	5	9	3	13	2	8	12	16	73	937	4	-	2	2	5	-	-	10	-	10	7	12	52	1,009
Nonmetal	2	-	1	37	2	14	1	36	58	28	178	749	15	3	14	7	31	1	3	31	4	25	32	33	199	948
Total	13	3	14	88	5	48	8	83	162	131	555	5,083	32	5	60	37	97	4	4	90	14	66	107	113	609	5,607

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TABLE 7. - Metallurgical plants: Employment data and injury experience, by industry groups, 1954[1/]

Industry	Men working daily	Average active plant days	Man-days worked	Man-hours worked	Number of injuries		Injury rates per million man-hours	
					Fatal	Nonfatal	Fatal	Nonfatal
Copper	18,340	300	5,495,787	44,015,230	8	596	0.18	13.54
Gold-silver	385	301	116,066	925,843	1	34	1.08	36.72
Iron	4,153	226	939,314	7,574,213	3	80	.40	10.56
Lead-zinc	15,691	310	4,867,160	38,811,836	3	900	.08	23.19
Miscellaneous metals[2/]	15,827	335	5,294,318	42,348,279	1	968	.02	22.86
Total	54,396	307	16,712,645	133,675,401	16	2,578	.12	19.29

1/ Includes smelters, primary nonferrous reduction and refinery plants, and ore-dressing plants.
2/ Includes antimony, bauxite, chromite, magnesium plants, manganese, mercury, molybdenum, tin, tungsten, and other metals.

TABLE 8. - Ore-dressing plants: Employment data and injury experience, by industry groups, 1954[1/]

Industry	Men working daily	Average active mill days	Man-days worked	Man-hours worked	Number of injuries		Injury rates per million man-hours	
					Fatal	Nonfatal	Fatal	Nonfatal
Copper	7,096	294	2,087,365	16,698,943	4	273	0.24	16.35
Gold-silver	385	301	116,066	925,843	1	34	1.08	36.72
Iron	4,153	226	939,314	7,574,213	3	80	.40	10.56
Lead-zinc	3,551	247	875,911	7,023,574	1	132	.14	18.79
Miscellaneous metals[2/]	3,910	317	1,238,274	9,898,374	1	311	.10	31.42
Total	19,095	275	5,256,930	42,120,947	10	830	.24	19.71

1/ Includes crushers, grinders, washers, and ore-concentration, sintering, cyaniding, leaching, and all other metallic ore-dressing plants and auxiliary works.
2/ Includes antimony, bauxite, mercury, manganese, tungsten, chromite, vanadium, molybdenum, and other metals.

TABLE 9. - Smelters: Primary nonferrous reduction and refinery plants, by industry groups, 1954[1/]

Industry	Men working daily	Average active smelter days	Man-days worked	Man-hours worked	Number of injuries		Injury rates per million man-hours	
					Fatal	Nonfatal	Fatal	Nonfatal
Copper	11,244	303	3,408,422	27,316,287	4	323	0.15	11.82
Lead	3,259	314	1,021,980	8,175,841	1	93	.12	11.37
Zinc	8,881	334	2,969,269	23,612,421	1	675	.04	28.59
Miscellaneous metals[2/]	11,917	340	4,056,044	32,449,905	-	657	-	20.25
Total	35,301	325	11,455,715	91,554,454	6	1,748	.07	19.09

1/ Includes smelters, refineries, and roasting electrolytic, retort, and all other nonferrous-metal reduction or refining plants.
2/ Includes mercury, antimony, tin, and magnesium plants.

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INJURY EXPERIENCE, BY STATES

TABLE 10. - Relative standing of States and Alaska employing 1,000 or more men in metal and nonmetal mines, 1954

Relative standing by employment	State	Number of men working	Relative standing (fatalities)	State	Fatality rate[1/]	Relative standing (nonfatal) injuries	State	Nonfatal injury rate[1/]
1	Minnesota	12,172	1	Texas	-	1	Florida	7.49
2	Michigan	9,055	2	Missouri	-	2	Minnesota	8.21
3	Arizona	7,836	3	Florida	-	3	Alabama	8.66
4	Montana	5,694	4	Louisiana	-	4	Tennessee	12.25
5	Utah	4,544	5	Tennessee	-	5	Michigan	23.36
6	Alabama	3,609	6	Minnesota	0.13	6	Alaska	25.68
7	Idaho	3,485	7	Alabama	.37	7	Texas	28.88
8	Colorado	3,099	8	Michigan	.43	8	Utah	29.50
9	California	3,029	9	Utah	.52	9	Wisconsin	30.74
10	New Mexico	2,928	10	California	.52	10	Missouri	31.43
11	Nevada	2,530	11	New York	.74	11	Louisiana	32.36
12	Missouri	2,093	12	Arizona	.75	12	Montana	34.00
13	New York	1,885	13	Wisconsin	.81	13	New York	36.55
14	Texas	1,758	14	New Mexico	.83	14	Arizona	36.81
15	Alaska	1,628	15	Nevada	.94	15	California	51.33
16	Florida	1,595	16	Colorado	.96	16	New Mexico	53.50
17	Wisconsin	1,292	17	Idaho	1.05	17	Nevada	59.96
18	Tennessee	1,247	18	Montana	1.19	18	Colorado	66.57
19	Louisiana	1,222	19	Alaska	1.66	19	South Dakota	81.54
20	South Dakota	1,160	20	South Dakota	1.93	20	Idaho	112.58
	United States total[2/]	79,420		United States average fatalities	.59		United States average nonfatal injuries	37.18

1/ Based on number of fatal and nonfatal injuries per million man-hours.
2/ United States total represents all States, regardless of men employed.

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TABLE 11. - Number of active metal and nonmetal mines, men working, man-days and man-hours worked, and injuries and injury-frequency rates at metal and nonmetal mines in the United States and Alaska, by location and State, 1954

State	Number of active operations	Men at work				Man-days worked				Man-hours worked			
		Under-ground	Opencut	Surface	Total	Under-ground	Opencut	Surface	Total	Under-ground	Opencut	Surface	Total
Alabama	38	2,715	406	488	3,609	486,393	97,687	82,463	666,543	3,891,133	877,852	659,699	5,428,684
Alaska	253	241	36	1,351	1,628	32,496	4,320	265,004	301,820	259,968	34,560	2,119,632	2,414,160
Arizona	458	3,767	3,044	1,025	7,836	1,020,230	870,336	288,980	2,179,546	8,166,060	6,962,467	2,312,465	17,440,992
Arkansas	11	291	214	68	573	77,878	55,415	18,179	151,472	623,024	446,190	145,430	1,214,644
California	450	1,462	785	782	3,029	347,954	139,402	224,583	711,939	2,787,639	1,140,538	1,799,013	5,727,190
Colorado	439	2,212	238	649	3,099	559,311	49,116	175,227	783,654	4,470,204	392,601	1,401,590	6,264,395
Florida	25	-	1,595	-	1,595	-	485,868	-	485,868	-	4,004,544	-	4,004,544
Georgia	21	20	126	8	154	4,540	27,131	1,830	33,501	45,400	244,085	18,300	307,785
Idaho	170	2,481	273	731	3,485	707,831	40,927	200,442	949,200	5,664,924	328,320	1,610,082	7,603,326
Illinois	24	385	-	80	465	76,846	-	15,526	92,372	614,759	-	124,201	738,960
Iowa	4	-	122	-	122	-	33,337	-	33,337	-	266,695	-	266,695
Kansas	18	312	4	37	353	84,947	274	10,258	95,479	679,253	2,194	82,066	763,513
Kentucky	7	167	104	78	349	16,512	19,136	6,719	42,367	132,090	156,032	55,346	343,468
Louisiana	10	104	30	1,088	1,222	26,717	7,800	395,403	429,920	213,730	62,400	3,370,526	3,646,656
Michigan	58	6,161	311	2,583	9,055	1,400,412	72,446	570,019	2,042,877	11,207,290	581,813	4,560,663	16,349,766
Minnesota	159	1,480	9,113	1,579	12,172	344,902	1,965,301	474,160	2,784,363	2,759,219	15,728,025	3,793,285	22,280,529
Missouri	26	1,612	175	306	2,093	404,242	45,561	71,766	521,569	3,234,428	390,750	574,130	4,199,308
Montana	172	4,448	74	1,172	5,694	1,149,667	17,738	302,692	1,470,097	9,208,881	141,905	2,413,276	11,764,062
Nevada	238	1,023	1,280	227	2,530	251,042	347,194	64,592	662,828	2,004,626	2,781,793	516,956	5,303,375
New Hampshire	5	31	21	8	60	8,710	5,361	2,380	16,451	70,722	42,886	19,045	132,653
New Jersey	10	737	13	227	977	166,434	2,976	50,024	219,434	1,331,469	24,564	400,196	1,756,229
New Mexico	183	1,455	1,175	298	2,928	479,476	320,565	99,234	899,275	3,835,790	2,566,175	793,865	7,195,830
New York	20	1,315	350	220	1,885	346,017	105,343	56,216	507,576	2,782,181	842,740	452,135	4,077,056
North Carolina	63	477	302	74	853	149,149	67,953	21,264	238,366	1,193,285	549,846	170,064	1,913,195
Oklahoma	26	422	112	56	590	117,565	32,750	17,505	167,820	940,518	276,752	140,040	1,357,310
Oregon	61	44	59	49	152	7,663	8,605	8,983	25,251	61,303	70,040	71,860	203,203
Pennsylvania	3	499	1	71	571	96,683	60	13,753	110,496	773,460	480	110,024	883,964
South Dakota	106	898	146	116	1,160	273,789	14,318	35,372	323,479	2,190,312	114,551	282,977	2,587,840
Tennessee	32	725	384	138	1,247	169,768	82,087	32,866	284,721	1,358,133	663,934	262,935	2,285,002
Texas	21	33	322	1,403	1,758	8,982	80,563	512,107	601,652	71,857	644,954	4,096,857	4,813,668
Utah	124	1,622	2,483	439	4,544	402,661	683,745	112,846	1,199,252	3,221,535	5,469,951	902,769	9,594,255
Vermont	6	160	139	28	327	47,975	36,005	8,425	92,405	387,358	288,040	68,094	743,492
Virginia	8	544	123	32	699	133,508	30,699	7,712	171,919	1,068,064	275,449	61,702	1,405,215
Washington	28	370	107	133	610	94,228	31,850	36,711	162,789	752,486	209,936	293,382	1,255,804
Wisconsin	12	1,043	5	244	1,292	250,996	500	57,523	309,019	2,007,966	4,000	460,194	2,472,160
Wyoming	12	251	186	95	532	56,217	45,107	20,537	121,861	449,738	362,481	164,296	976,515
Other States 1/	20	40	126	6	172	12,283	26,948	1,698	40,929	98,258	225,186	13,584	337,028
Total	3,321	39,547	23,984	15,889	79,420	9,814,024	5,854,424	4,262,999	19,931,447	78,557,063	47,174,729	34,320,679	160,052,471

1/ Includes Connecticut, Maine, Maryland, Nebraska, Ohio, and South Carolina.

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TABLE 11. - Number of active metal and nonmetal mines, men working, man-days and man-hours worked, and injuries and injury-frequency rates at metal and nonmetal mines in the United States and Alaska, by location and State, 1954 (Con.)

State	Average hours worked per man-day				Average days worked				Average hours worked per man per year			
	Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total
Alabama.....	8.00	8.99	8.00	8.14	179	241	169	185	1,433	2,162	1,352	1,504
Alaska.....	8.00	8.00	8.00	8.00	135	120	196	185	1,079	960	1,569	1,483
Arizona.....	8.00	8.00	8.00	8.00	271	286	282	278	2,168	2,287	2,256	2,226
Arkansas.....	8.00	8.05	8.00	8.02	268	259	267	264	2,141	2,085	2,139	2,120
California....	8.01	8.18	8.01	8.04	238	178	287	235	1,907	1,453	2,301	1,891
Colorado.....	7.99	7.99	8.00	7.99	253	206	270	253	2,021	1,650	2,160	2,021
Florida.....	-	8.24	-	8.24	-	305	-	305	-	2,511	-	2,511
Georgia.....	10.00	9.00	10.00	9.19	227	215	229	218	2,270	1,937	2,288	1,999
Idaho.....	8.00	8.02	8.03	8.01	285	150	274	272	2,283	1,203	2,203	2,182
Illinois.....	8.00	-	8.00	8.00	200	-	194	199	1,597	-	1,553	1,589
Iowa.....	-	8.00	-	8.00	-	273	-	273	-	2,186	-	2,186
Kansas.....	8.00	8.01	8.00	8.00	272	69	277	270	2,177	549	2,218	2,163
Kentucky.....	8.00	8.15	8.24	8.11	99	184	86	121	791	1,500	710	984
Louisiana.....	8.00	8.00	8.52	8.48	257	260	363	352	2,055	2,080	3,098	2,984
Michigan.....	8.00	8.03	8.00	8.00	227	233	221	226	1,819	1,871	1,766	1,806
Minnesota.....	8.00	8.00	8.00	8.00	233	216	300	229	1,864	1,726	2,402	1,830
Missouri.....	8.00	8.58	8.00	8.05	251	260	235	249	2,006	2,233	1,876	2,006
Montana.....	8.01	8.00	7.97	8.00	258	240	258	258	2,070	1,918	2,059	2,066
Nevada.....	7.99	8.01	8.00	8.00	245	271	285	262	1,960	2,173	2,277	2,096
New Hampshire.	8.12	8.00	8.00	8.06	281	255	298	274	2,281	2,042	2,381	2,210
New Jersey....	8.00	8.25	8.00	8.00	226	229	220	225	1,807	1,890	1,763	1,798
New Mexico....	8.00	8.01	8.00	8.00	330	273	333	307	2,636	2,184	2,664	2,458
New York.....	8.04	8.00	8.04	8.03	263	301	256	269	2,116	2,408	2,055	2,163
North Carolina	8.00	8.09	8.00	8.03	313	225	287	279	2,502	1,821	2,298	2,243
Oklahoma.....	8.00	8.45	8.00	8.09	279	292	313	284	2,229	2,471	2,501	2,301
Oregon.....	8.00	8.14	8.00	8.05	174	146	183	166	1,393	1,187	1,467	1,337
Pennsylvania..	8.00	8.00	8.00	8.00	194	60	194	194	1,550	480	1,550	1,548
South Dakota..	8.00	8.00	8.00	8.00	305	98	305	279	2,439	785	2,439	2,231
Tennessee.....	8.00	8.09	8.00	8.03	234	214	238	228	1,873	1,729	1,905	1,832
Texas.....	8.00	8.01	8.00	8.00	272	250	365	342	2,177	2,003	2,920	2,738
Utah.....	8.00	8.00	8.00	8.00	248	275	257	264	1,986	2,203	2,056	2,111
Vermont.....	8.07	8.00	8.08	8.05	300	259	301	283	2,421	2,072	2,432	2,274
Virginia.....	8.00	8.97	8.00	8.17	245	250	241	246	1,963	2,239	1,928	2,010
Washington....	7.99	6.59	7.99	7.17	255	298	276	267	2,034	1,962	2,206	2,059
Wisconsin.....	8.00	8.00	8.00	8.00	241	100	236	239	1,925	800	1,886	1,913
Wyoming.....	8.00	8.04	8.00	8.01	224	243	216	229	1,792	1,949	1,729	1,836
Other States[1/]	8.00	8.06	8.00	8.23	307	214	283	238	2,456	1,787	2,264	1,959
Total....	8.00	8.06	8.05	8.03	248	244	268	251	1,986	1,967	2,160	2,015

1/ Includes Connecticut, Maine, Maryland, Nebraska, Ohio, and South Carolina.

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TABLE 11. - Number of active metal and nonmetal mines, men working, man-days and man-hours worked, and injuries and injury-frequency rates at metal and nonmetal mines in the United States and Alaska, by location and State, 1954 (Con.)

State	Number of injuries								Injury-frequency rates per million man-hours							
	Fatal				Nonfatal				Fatal				Nonfatal			
	Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Alabama	1	-	1	2	38	-	9	47	0.26	-	1.14	0.37	9.77	-	10.25	8.66
Alaska	3	1	-	4	14	45	3	62	11.54	.47	-	1.66	53.85	21.23	86.81	25.68
Arizona	10	-	3	13	515	43	84	642	1.22	-	.43	.75	63.07	18.59	12.06	36.81
Arkansas	-	-	-	-	65	1	9	75	-	-	-	-	104.33	6.88	20.17	61.75
California	2	-	1	3	216	49	29	294	.72	-	.88	.52	77.48	27.24	25.43	51.33
Colorado	6	-	-	6	383	32	2	417	1.34	-	-	.96	85.68	22.83	5.09	66.57
Florida	-	-	-	-	-	-	30	30	-	-	-	-	-	-	7.49	7.49
Georgia	-	-	2	2	8	-	2	10	-	-	8.19	6.50	176.21	-	8.19	32.49
Idaho	8	-	-	8	778	59	19	856	1.41	-	-	1.05	137.34	36.64	57.87	112.58
Illinois	-	-	-	-	23	8	-	31	-	-	-	-	37.41	64.41	-	41.95
Iowa	-	-	-	-	-	-	2	2	-	-	-	-	-	-	7.50	7.50
Kansas	-	-	-	-	41	1	-	42	-	-	-	-	60.36	12.19	-	55.01
Kentucky	-	-	-	-	7	1	3	11	-	-	-	-	52.99	18.07	19.23	32.03
Louisiana	-	-	-	-	18	100	-	118	-	-	-	-	84.22	29.67	-	32.36
Michigan	6	1	-	7	345	33	4	382	.54	.22	-	.43	30.78	7.24	6.88	23.36
Minnesota	1	-	2	3	47	25	111	183	.36	-	.13	.13	17.03	6.59	7.06	8.21
Missouri	-	-	-	-	114	4	14	132	-	-	-	-	35.25	6.97	35.83	31.43
Montana	14	-	-	14	370	20	10	400	1.52	-	-	1.19	40.18	8.29	70.47	34.00
Nevada	4	-	1	5	209	27	82	318	2.00	-	.36	.94	104.26	52.23	29.48	59.96
New Hampshire	-	-	-	-	4	2	3	9	-	-	-	-	56.56	105.01	69.95	67.85
New Jersey	2	-	-	2	103	11	-	114	1.50	-	-	1.14	77.36	27.49	-	64.91
New Mexico	1	-	5	6	284	24	77	385	.26	-	1.95	.83	74.04	30.23	30.01	53.50
New York	2	-	1	3	135	7	7	149	.72	-	1.19	.74	48.52	15.48	8.31	36.55
North Carolina	1	-	-	1	95	8	24	127	.84	-	-	.52	79.61	47.04	43.65	66.38
Oklahoma	-	-	1	1	25	-	5	30	-	-	3.61	.74	26.58	-	18.07	22.10
Oregon	-	-	-	-	3	4	3	10	-	-	-	-	48.94	55.66	42.83	49.21
Pennsylvania	-	-	-	-	7	1	-	8	-	-	-	-	9.05	9.09	-	9.05
South Dakota	4	-	1	5	189	6	16	211	1.83	-	8.73	1.93	86.29	21.20	139.68	81.54
Tennessee	-	-	-	-	27	-	1	28	-	-	-	-	19.88	-	1.51	12.25
Texas	-	-	-	-	1	117	21	139	-	-	-	-	13.92	28.56	32.56	28.88
Utah	3	-	2	5	216	21	46	283	.93	-	.37	.52	67.05	23.26	8.41	29.50
Vermont	-	-	-	-	30	-	8	38	-	-	-	-	77.45	-	27.77	51.11
Virginia	-	-	1	1	50	2	16	68	-	-	3.63	.71	46.81	32.41	58.09	48.39
Washington	2	-	-	2	164	5	3	172	2.66	-	-	1.59	217.94	17.04	14.29	136.96
Wisconsin	2	-	-	2	74	2	-	76	1.00	-	-	.81	36.85	4.35	-	30.74
Wyoming	-	-	-	-	29	6	8	43	-	-	-	-	64.48	36.52	22.07	44.03
Other States 1/	-	-	-	-	1	-	7	8	-	-	-	-	10.18	-	31.09	23.74
Total	72	2	21	95	4,628	664	658	5,950	.92	.06	.45	.59	58.91	19.35	13.95	37.18

1/ Includes Connecticut, Maine, Maryland, Nebraska. Ohio, and South Carolina.

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TABLE 12. - All mines: Injuries in the United States and Alaska, by State and severity of injury, 1954

State	Fatalities	Permanent total[1]	Permanent partial[2]	Temporary total[3]	Total nonfatal injuries	Grand total
Alabama	2	-	14	33	47	49
Alaska	4	-	-	62	62	66
Arizona	13	-	24	618	642	655
Arkansas	-	-	6	69	75	75
California	3	3	9	282	294	297
Colorado	6	1	27	389	417	423
Florida	-	-	-	30	30	30
Georgia	2	-	-	10	10	12
Idaho	8	-	17	839	856	864
Illinois	-	-	3	28	31	31
Iowa	-	-	-	2	2	2
Kansas	-	-	3	39	42	42
Kentucky	-	-	2	9	11	11
Louisiana	-	-	-	118	118	118
Michigan	7	2	14	366	382	389
Minnesota	3	1	18	164	183	186
Missouri	-	-	7	125	132	132
Montana	14	-	11	389	400	414
Nevada	5	-	24	294	318	323
New Hampshire	-	-	-	9	9	9
New Jersey	2	-	17	97	114	116
New Mexico	6	1	15	369	385	391
New York	3	-	6	143	149	152
North Carolina	1	-	5	122	127	128
Oklahoma	1	-	4	26	30	31
Oregon	-	-	-	10	10	10
Pennsylvania	-	-	-	8	8	8
South Dakota	5	1	7	203	211	216
Tennessee	-	1	4	23	28	28
Texas	-	-	23	116	139	139
Utah	5	-	16	267	283	288
Vermont	-	-	1	37	38	38
Virginia	1	-	1	67	68	69
Washington	2	1	3	168	172	174
Wisconsin	2	-	1	75	76	78
Wyoming	-	-	-	43	43	43
Other States[4]	-	-	-	8	8	8
Total: 1954	95	11	282	5,657	5,950	6,045
1953	114	1	340	7,242	7,583	7,697

1/ Permanent total disability. Loss of, or loss of use of, both hands, or both arms, or both legs, or both feet, or both eyes, or any 2 thereof; or any injury (except death) that permanently and totally incapacitates the injured person from following any gainful occupation.

2/ Permanent partial disability. Loss of, or loss of use of, 1 foot, leg, hand, arm, or eye; or loss of part of bone of 1 of foregoing; or loss or loss of use of 1 or more fingers, or 1 great toe, or any 2 or more toes; or permanent impairment of use of any part of the body.

3/ Disability for more than remainder of day of accident.

4/ Includes Connecticut, Maine, Maryland, Nebraska, Ohio, and South Carolina.

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TABLE 13. - Number of injuries at all metal and nonmetal mines in the United States and Alaska, by location, agency, and State, 1954[1/]

State	Underground																	
	Fall of rock or ore from roof or wall		Handling rock or ore while loading at working face		Handtools		Explosives		Haulage		Falling down chute, winze, raise, or stope		Other falls of persons		Run of ore from chute or pocket		Drilling	
	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries
Alabama	1	9	-	5	-	1	-	-	-	9	-	-	-	2	-	-	-	4
Alaska	-	2	-	3	-	-	2	2	-	1	-	-	-	1	-	1	-	2
Arizona	5	78	1	37	-	21	1	5	2	67	-	3	-	27	1	28	-	58
Arkansas	-	19	-	-	-	1	-	1	-	2	-	2	-	4	-	1	-	4
California	1	56	-	10	-	4	-	1	-	14	-	15	-	11	-	8	-	20
Colorado	2	63	-	33	-	13	-	7	-	37	-	11	-	45	1	19	-	40
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	1	133	1	45	-	69	-	-	1	93	2	30	-	47	3	15	-	63
Illinois	-	6	-	2	-	1	-	-	-	2	-	-	-	2	-	1	-	2
Iowa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kansas	-	3	-	1	-	4	-	-	-	2	-	2	-	4	-	1	-	3
Kentucky	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	3	-	-
Louisiana	-	-	-	-	-	2	-	-	-	7	-	-	-	-	-	-	-	3
Michigan	3	63	-	14	-	11	-	1	1	40	2	9	-	37	-	27	-	34
Minnesota	-	9	-	2	-	2	-	-	-	1	-	1	-	10	1	1	-	3
Missouri	-	7	-	5	-	10	-	-	-	14	-	-	-	21	-	-	-	25
Montana	4	114	-	11	1	22	-	8	4	34	2	9	-	20	-	2	-	19
Nevada	-	31	-	12	-	11	-	1	-	32	-	14	-	6	-	22	-	26
New Hampshire	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	6	-	7	-	8	-	1	-	14	-	3	-	10	-	7	-	23
New Mexico	-	23	-	19	-	7	-	10	-	39	-	6	-	10	-	9	-	21
New York	1	15	-	15	-	11	-	1	-	11	-	2	-	7	-	8	-	19
North Carolina	-	7	-	12	-	8	-	-	-	6	-	8	-	-	-	11	-	14
Oklahoma	-	4	-	1	-	3	-	-	-	2	-	-	-	1	-	2	-	-
Oregon	-	1	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Pennsylvania	-	-	-	2	-	-	-	-	-	-	-	-	-	1	-	-	-	-
South Dakota	1	16	1	37	-	9	-	1	1	23	-	-	-	17	-	2	-	17
Tennessee	-	-	-	5	-	1	-	-	-	6	-	1	-	4	-	1	-	4
Texas	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Utah	-	36	-	13	-	25	-	2	-	30	-	3	-	11	-	4	-	23
Vermont	-	-	-	3	-	-	-	-	-	6	-	2	-	-	-	2	-	9
Virginia	-	2	-	3	-	3	-	-	-	6	-	1	-	2	-	9	-	9
Washington	1	24	-	19	-	18	1	3	-	10	-	9	-	6	-	-	-	27
Wisconsin	1	19	-	3	-	3	-	-	-	7	-	4	-	8	1	1	-	2
Wyoming	-	7	-	2	-	2	-	-	-	3	-	-	-	-	-	6	-	-
Other States[2/]	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Total: 1954	21	754	3	325	1	273	4	44	9	520	6	136	-	315	7	191	-	474
1953	30	951	1	430	1	346	13	80	8	633	9	161	-	334	2	281	1	503
Change in 1954 ..... percent	-30.0	-20.7	+200.0	-24.4	0.0	-21.1	-69.2	-45.0	+12.5	-17.9	-33.3	-15.5	-	-5.7	+250.0	-32.0	-100.0	-5.8

1/ See footnotes at end of table.

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TABLE 13. - Number of injuries at all metal and nonmetal mines in the United States and Alaska, by location, agency, and State, 1954[1/] (Con.)

State	Underground (Con.)																	
	Electricity		Machinery (other than locomotives or drills)		Mine fires		Suffocation from natural gases		Inrush of water		Stepping on nail		Handling materials (other than item 2)		Other causes		Total underground	
	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	5	1	39
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	3	3	17
Arizona	-	5	-	19	-	-	-	1	-	-	-	9	-	93	-	70	10	521
Arkansas	-	-	-	2	-	-	-	-	-	-	-	1	-	16	-	12	-	65
California	-	-	-	15	-	-	-	-	-	-	-	1	-	14	1	44	2	213
Colorado	-	1	1	21	-	-	1	2	-	-	-	8	-	42	1	44	6	386
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	3	-	-	-	-	-	-	-	-	-	1	-	-	-	7
Idaho	-	1	-	22	-	-	-	-	-	-	-	10	-	145	-	99	8	772
Illinois	-	-	-	1	-	-	-	-	-	-	-	-	-	2	-	4	-	23
Iowa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kansas	-	-	-	4	-	-	-	1	-	-	-	-	-	3	-	9	-	37
Kentucky	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	7
Louisiana	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	3	-	16
Michigan	-	1	-	21	-	-	-	-	-	-	-	-	-	39	-	46	6	343
Minnesota	-	-	-	2	-	-	-	-	-	-	-	-	-	9	-	7	1	47
Missouri	-	4	-	4	-	-	-	1	-	-	-	-	-	16	-	5	-	112
Montana	-	2	-	38	-	-	-	-	-	-	-	5	-	48	3	49	14	381
Nevada	-	-	-	15	-	2	-	1	-	-	-	2	-	12	-	12	-	199
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	4
New Jersey	1	1	-	2	-	-	-	-	-	-	-	2	-	11	-	7	1	102
New Mexico	-	11	-	31	-	-	1	1	-	-	-	2	-	40	-	52	1	281
New York	-	-	-	9	-	-	-	-	-	-	-	-	-	13	1	25	2	136
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	16	1	14	1	96
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	9	-	24
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	3	-	7
South Dakota	-	-	-	15	-	-	-	-	-	-	-	-	-	26	-	28	3	191
Tennessee	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1	-	26
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Utah	-	-	-	22	-	-	-	1	-	-	-	4	-	21	-	14	-	209
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	3	-	30
Virginia	-	-	-	3	-	-	-	-	-	-	-	1	-	7	-	3	-	49
Washington	-	2	-	1	-	-	-	-	-	-	-	1	-	32	-	13	2	165
Wisconsin	-	3	-	4	-	-	-	-	-	-	-	1	-	6	-	15	2	76
Wyoming	-	-	-	1	-	-	-	-	-	-	-	-	-	3	-	5	-	29
Other States[2/]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Total: 1954	1	31	1	256	-	2	2	9	-	-	-	49	1	632	7	604	63	4,615
1953	2	40	2	312	8	9	2	16	-	-	-	61	2	764	3	639	84	5,560
Change in 1954 ..... percent	-50.0	-22.5	-50.0	-17.9	-100.0	-77.8	0.0	-43.8				-19.7	-50.0	-17.3	+133.3	-5.5	-25.0	-17.0

1/ See footnotes at end of table.

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TABLE 13. - Number of injuries of all metal and nonmetal mines in the United States and Alaska, by location, agency, and State, 1954[1/] (Con.)

State	Shaft														Total underground and shaft	
	Falling down shaft		Objects falling down shaft		Breaking of cables		Overwinding		Cage, skip, or bucket		Other causes		Total shaft			
	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	39
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	17
Arizona	-	-	-	4	-	-	-	-	-	-	-	-	-	4	10	525
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65
California	-	-	-	-	-	-	-	-	-	3	-	2	-	5	2	218
Colorado	-	-	-	-	-	-	-	-	-	3	-	-	-	3	6	389
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	8
Idaho	-	-	-	4	-	-	-	-	-	9	-	1	-	14	8	786
Illinois	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Iowa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kansas	-	-	-	1	-	1	-	-	-	1	-	1	-	4	-	41
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Louisiana	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	18
Michigan	-	-	-	3	-	-	-	-	-	3	-	2	-	8	6	351
Minnesota	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	48
Missouri	-	-	-	-	-	-	-	-	-	1	-	1	-	2	-	114
Montana	-	1	-	1	-	-	-	-	-	-	-	1	-	3	14	384
Nevada	3	6	-	2	-	-	-	-	1	3	-	3	4	14	4	213
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
New Jersey	-	-	-	-	-	-	-	-	1	2	-	1	1	3	2	105
New Mexico	-	-	-	1	-	-	-	-	-	1	-	2	-	4	1	285
New York	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	137
North Carolina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	96
Oklahoma	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	25
Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
South Dakota	-	-	-	-	-	-	-	-	1	1	-	1	1	2	4	193
Tennessee	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	27
Texas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Utah	1	2	-	-	-	-	-	1	2	6	-	1	3	10	3	219
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49
Virginia	-	-	-	-	-	-	-	-	-	1	-	-	-	1	2	166
Washington	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	77
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Other States[2/]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30
Total: 1954	4	9	-	18	-	1	-	1	5	35	-	21	9	85	72	4,700
1953	5	17	1	19	-	-	-	-	2	40	1	19	9	95	93	5,655
Change in 1954 ..... percent	-20.0	-47.1	-100.0	-5.3	-	+100.0	-	+100.0	+150.0	-12.5	-100.0	+10.5	0.0	-10.5	-22.6	-16.9

1/ See footnotes at end of table.

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TABLE 13. - Number of injuries at all metal and nonmetal mines in the United States and Alaska, by location, agency, and State, 1954[1/] (Con.)

State	Surface: Mine cars, mine locomotives, or aerial trams		Railway cars and locomotives		Run or fall of ore in or from ore bins		Falls of persons		Stepping on nails		Handtools		Electricity		Machinery		Handling materials		Other causes		Total surface		Total underground, shaft, and surface	
	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries
Alabama	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	39
Alaska	-	-	-	-	-	-	-	5	-	-	-	7	-	-	-	-	1	8	-	26	1	46	4	63
Arizona	-	-	-	1	-	3	-	10	-	-	-	3	-	1	-	7	-	13	-	5	-	43	10	568
Arkansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	66
California	-	1	-	-	-	1	-	7	-	1	-	5	-	-	-	13	-	11	-	10	-	49	2	267
Colorado	-	3	-	-	-	-	-	2	-	-	-	2	-	3	-	5	-	10	-	7	-	32	6	421
Florida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Idaho	-	-	-	-	-	1	-	3	-	-	-	3	-	-	-	8	-	20	-	24	-	59	8	845
Illinois	-	1	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	2	-	3	-	8	-	31
Iowa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	42
Kentucky	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	8
Louisana	-	-	-	-	-	1	-	19	-	1	-	7	-	-	-	15	-	22	-	35	-	100	-	118
Michigan	-	-	1	1	-	1	-	3	-	-	-	-	-	2	-	8	-	9	-	10	1	34	7	385
Minnesota	-	1	-	-	-	-	-	6	-	-	-	1	-	1	-	1	-	10	-	5	-	25	1	73
Missouri	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	1	-	1	-	-	-	4	-	118
Montana	-	1	-	-	-	5	-	2	-	1	-	2	-	-	-	3	-	4	-	2	-	20	14	404
Nevada	-	2	-	-	-	-	-	5	-	-	-	7	-	-	-	1	-	7	-	5	-	27	4	240
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-	6
New Jersey	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	1	-	5	-	-	-	11	2	116
New Mexico	-	2	-	-	-	1	-	2	-	-	-	-	-	1	-	6	-	5	-	7	-	24	1	309
New York	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	4	-	7	2	144
North Carolina	-	-	-	1	-	-	-	2	-	1	-	1	-	-	-	-	-	3	-	-	-	8	1	104
Oklahoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
Oregon	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	2	-	-	-	-	-	4	-	7
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	8
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	5	-	-	-	6	4	199
Tennessee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27
Texas	-	-	-	-	-	-	-	19	-	-	-	6	-	-	-	27	-	24	-	41	-	117	-	118
Utah	-	1	-	1	-	-	-	2	-	-	-	2	-	-	-	4	-	6	-	5	-	21	3	240
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49
Virginia	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	2	168
Washington	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	-	2	-	5	2	82
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	2	-	31
Wyoming	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	3	-	1	-	6	-	7
Other States[2/]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30
Total: 1954	-	13	1	5	-	14	-	94	-	5	-	50	-	8	-	105	1	177	-	195	2	666	74	5,366
1953	1	18	-	11	-	7	1	150	-	16	-	140	1	13	1	121	1	253	-	397	5	1,126	98	6,781
Change in 1954, percent	-100.0	-27.8	+100.0	-54.5	-	+100.0	-100.0	-37.3	-	-68.8	-	-64.3	-100.0	-38.5	-100.0	-13.2	0.0	-30.0	-	-50.9	-60.0	-40.9	-24.5	-20.9

1/ See footnotes at end of table.

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TABLE 13. - Number of injuries at all metal and nonmetal mines in the United States and Alaska, by location, agency, and State, 1954[1/] (Con.)

State	Opencut: Falls or slides of rock or ore		Explosives		Haulage		Power shovels		Falls of persons		Falls of derricks, booms, etc.		Run or fall of ore in or from ore bins		Machinery (other than locomotives or power shovels)		Electricity		Handtools		Handling materials		Other causes		Total opencut		Total underground, shaft, surface, and opencut	
	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries	Fatal	All injuries
Alabama	-	-	-	-	1	3	-	-	-	1	-	-	-	-	-	-	-	-	-	2	-	-	-	4	1	10	2	49
Alaska	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	3	4	66
Arizona	1	4	-	2	1	3	-	4	-	10	-	1	-	-	1	24	-	-	-	6	-	20	-	13	3	87	13	655
Arkansas	-	1	-	-	-	1	-	1	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	3	-	9	-	75
California	-	2	-	-	-	1	-	1	-	2	-	-	-	-	1	10	-	-	-	4	-	7	-	2	1	30	3	297
Colorado	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2	6	423
Florida	-	1	-	-	-	-	-	1	-	7	-	-	-	-	-	2	-	1	-	3	-	3	-	12	-	30	-	30
Georgia	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	2	4	2	12
Idaho	-	-	-	-	-	6	-	1	-	4	-	-	-	1	-	4	-	-	-	1	-	1	-	1	-	19	8	864
Illinois	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31
Iowa	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2	-	2
Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42
Kentucky	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	3	-	11
Louisiana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	118
Michigan	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	4	7	389
Minnesota	-	4	-	1	-	17	1	11	-	23	-	-	-	1	1	4	-	3	-	5	-	20	-	24	2	113	3	186
Missouri	-	2	-	-	-	-	-	2	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-	6	-	14	-	132
Montana	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	5	-	2	-	1	-	10	14	414
Nevada	1	7	-	1	-	17	-	13	-	5	-	2	-	-	-	14	-	1	-	10	-	4	-	9	1	83	5	323
New Hampshire	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	3	-	9
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	116
New Mexico	-	1	5	5	-	2	-	3	-	18	-	-	-	-	-	9	-	5	-	6	-	19	-	14	5	82	6	391
New York	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	-	-	-	1	-	4	-	1	1	8	3	152
North Carolina	-	1	-	2	-	2	-	-	-	8	-	-	-	-	-	3	-	-	-	-	-	5	-	3	-	24	1	128
Oklahoma	-	1	-	-	-	-	-	1	-	-	-	-	-	-	1	1	-	2	-	1	-	-	-	-	1	6	1	31
Oregon	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	3	-	10
Pennsylvania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
South Dakota	-	5	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	4	-	1	1	4	1	17	5	216
Tennessee	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	28
Texas	-	1	-	1	-	1	-	-	-	1	-	-	-	-	-	2	-	-	-	9	-	4	-	2	-	21	-	139
Utah	-	4	-	-	-	9	-	1	1	8	-	-	-	-	-	5	1	2	-	7	-	6	-	6	2	48	5	288
Vermont	-	1	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	8	-	57
Virginia	-	-	-	-	1	1	-	-	-	1	-	-	-	-	-	3	-	1	-	-	-	7	-	4	1	17	3	185
Washington	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	3	2	85
Wisconsin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31
Wyoming	-	1	-	-	-	-	-	1	-	1	-	-	-	-	-	1	-	-	-	2	-	-	-	2	-	8	-	15
Other States[2/]	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	1	-	-	-	1	-	1	-	2	-	7	-	37
Total: 1954	3	39	5	12	4	68	1	44	1	100	-	5	-	4	5	93	1	15	-	69	-	114	1	116	21	679	95	6,045
1953	3	58	2	9	5	96	1	57	1	130	-	4	-	11	2	129	2	13	-	80	-	134	-	208	16	930	114	7,711
Change in 1954 ..... percent	0.0	-32.8	+150.0	+33.3	-20.0	-29.2	0.0	-22.8	0.0	-23.1	-	+25.0	-	-63.6	+150.0	-27.9	-50.0	+15.4	-	-13.8	-	-14.9	+100.0	-44.2	+31.3	-27.0	-16.7	-21.6

1/ Nonfatal injuries may be determined by subtracting fatal injuries from all injuries.
2/ Includes Connecticut, Maine, Maryland, Nebraska, Ohio, South Carolina.

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TABLE 14. - Employment data and injury experience at copper mines, by States, 1954

State	Number of active mines	Number of men employed				Days active				Man-days worked			
		Under-ground	Sur-face	Open-cut	Total	Under-ground	Sur-face	Open-cut	Total	Under-ground	Surface	Opencut	Total
Arizona	85	2,883	861	2,823	6,567	281	287	302	291	811,091	246,883	851,976	1,909,950
Idaho	5	124	96	-	220	294	305	-	299	36,487	29,233	-	65,720
Michigan	10	871	274	-	1,145	266	263	-	265	231,606	72,118	-	303,724
Nevada	13	170	23	829	1,022	212	200	293	277	36,050	4,600	242,811	283,461
New Mexico ...	17	121	34	935	1,090	264	302	304	300	31,955	10,281	284,656	326,892
Utah	9	11	-	2,010	2,021	70	-	284	283	766	-	570,959	571,725
Other States[1/]	38	2,900	1,079	31	4,010	263	263	258	263	763,952	283,910	8,008	1,055,870
Total	177	7,080	2,367	6,628	16,075	270	273	295	281	1,911,907	647,025	1,958,410	4,517,342

State	Number of active mines	Man-hours worked				Number of injuries							
						Fatal				Nonfatal			
		Under-ground	Surface	Opencut	Total	Under-ground	Sur-face	Open-cut	Total	Under-ground	Sur-face	Open-cut	Total
Arizona	85	6,493,426	1,975,074	6,816,803	15,285,303	7	-	3	10	341	32	83	456
Idaho	5	290,953	233,864	-	524,817	2	-	-	2	56	-	-	56
Michigan	10	1,852,842	576,939	-	2,429,781	2	-	-	2	120	6	-	126
Nevada	13	288,413	36,800	1,942,479	2,267,692	1	-	1	2	3	-	35	38
New Mexico ...	17	255,630	82,246	2,277,247	2,615,123	-	-	5	5	57	4	62	123
Utah	9	6,125	-	4,567,672	4,573,797	-	-	2	2	-	-	34	34
Other States[1/]	38	6,111,273	2,271,284	64,063	8,446,620	9	-	-	9	270	10	2	282
Total	177	15,298,662	5,176,207	15,668,264	36,143,133	21	-	11	32	847	52	216	1,115

1/ Includes California, Colorado, Montana, Tennessee, Vermont, Washington, and Wyoming.

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TABLE 15. - Employment data and injury experience at gold-silver lode mines, by States and Alaska, 1954

State	Number of active mines	Number of men employed				Days active				Man-days worked			
		Underground	Surface	Open-cut	Total	Underground	Surface	Open-cut	Total	Underground	Surface	Open-cut	Total
Alaska	64	218	23	-	241	135	135	-	135	29,400	3,100	-	32,500
Arizona	46	73	4	9	86	90	154	95	93	6,566	616	852	8,034
California ...	71	377	121	5	503	253	262	73	254	95,481	31,707	367	127,555
Colorado	52	188	61	-	249	205	262	-	219	38,633	15,999	-	54,632
Idaho	37	524	129	-	653	301	305	-	302	157,592	39,379	-	196,971
Montana	48	60	3	3	66	132	299	33	136	7,949	898	99	8,946
Nevada	29	58	7	13	78	162	106	198	163	9,422	744	2,573	12,739
South Dakota..	5	861	107	2	970	307	306	74	306	264,230	32,759	147	297,136
Utah	15	45	6	-	51	166	200	-	170	7,477	1,199	-	8,676
Washington ...	4	58	15	-	73	278	293	-	281	16,097	4,401	-	20,498
Other States[1/]	23	37	4	-	41	126	231	-	136	4,674	922	-	5,596
Total	394	2,499	480	32	3,011	255	274	126	257	637,521	131,724	4,038	773,283

State	Number of active mines	Man-hours worked				Number of injuries							
						Fatal				Nonfatal			
		Underground	Surface	Open-cut	Total	Underground	Surface	Open-cut	Total	Underground	Surface	Open-cut	Total
Alaska	64	235,200	24,800	-	260,000	1	-	-	1	14	2	-	16
Arizona	46	52,518	4,928	6,816	64,262	-	-	-	-	1	-	-	1
California ...	71	762,726	253,658	2,696	1,019,080	1	-	-	1	44	2	-	46
Colorado	52	306,977	127,736	-	434,713	-	-	-	-	10	4	-	14
Idaho	37	1,264,872	315,020	-	1,579,892	-	-	-	-	276	18	-	294
Montana	48	63,449	7,180	798	71,427	-	-	-	-	-	-	-	-
Nevada	29	75,376	5,951	20,580	101,907	-	-	-	-	2	-	-	2
South Dakota..	5	2,113,837	262,073	1,176	2,377,086	4	-	-	4	189	6	-	195
Utah	15	59,694	9,590	-	69,284	-	-	-	-	6	1	-	7
Washington ...	4	127,989	35,032	-	163,021	-	-	-	-	18	-	-	18
Other States[1/]	23	37,391	7,376	-	44,767	-	-	-	-	-	-	-	-
Total	394	5,100,029	1,053,344	32,066	6,185,439	6	-	-	6	560	33	-	593

1/ Includes New Mexico, Oregon, and Wyoming.

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TABLE 16. - Employment data and injury experience at iron mines, by States, 1954

State	Number of active mines	Number of men employed				Days active				Man-days worked			
		Under-ground	Sur-face	Open-cut	Total	Under-ground	Sur-face	Open-cut	Total	Under-ground	Surface	Opencut	Total
Alabama.....	36	2,715	488	393	3,596	179	169	242	185	486,393	82,463	95,012	663,868
Georgia.....	11	-	-	70	70	-	-	237	237	-	-	16,623	16,623
Michigan.....	42	5,090	2,275	199	7,564	218	214	189	216	1,110,582	487,907	37,595	1,636,084
Minnesota.....	159	1,480	1,579	9,113	12,172	233	300	216	229	344,902	474,160	1,965,301	2,784,363
Missouri.....	3	81	76	10	167	164	165	144	163	13,267	12,521	1,444	27,232
Nevada.....	7	-	-	83	83	-	-	248	248	-	-	20,583	20,583
New Jersey....	4	428	158	-	586	227	220	-	225	97,098	34,690	-	131,788
New York.....	5	520	132	327	979	234	239	303	258	121,728	31,530	99,200	252,458
Utah.....	7	-	-	391	391	-	-	242	242	-	-	94,430	94,430
Other States[1/]	12	1,552	356	324	2,232	223	223	242	226	346,697	79,284	78,261	504,242
Total....	286	11,866	5,064	10,910	27,840	212	237	221	220	2,520,667	1,202,555	2,408,449	6,131,671

State	Number of active mines	Man-hours worked				Number of injuries							
						Fatal				Nonfatal			
		Under-ground	Surface	Opencut	Total	Under-ground	Sur-face	Open-cut	Total	Under-ground	Sur-face	Open-cut	Total
Alabama.....	36	3,891,133	659,699	856,692	5,407,524	1	-	1	2	38	-	9	47
Georgia.....	11	-	-	150,477	150,477	-	-	2	2	-	-	-	-
Michigan.....	42	8,884,658	3,903,200	302,996	13,090,854	3	1	-	4	213	27	4	244
Minnesota.....	159	2,759,219	3,793,285	15,728,025	22,280,529	1	-	2	3	47	25	111	183
Missouri.....	3	106,136	100,169	11,552	217,857	-	-	-	-	6	-	-	6
Nevada.....	7	-	-	166,269	166,269	-	-	-	-	-	-	31	31
New Jersey....	4	776,784	277,520	-	1,054,304	1	-	-	1	49	9	-	58
New York.....	5	973,828	252,239	793,600	2,019,667	-	-	1	1	17	-	6	23
Utah.....	7	-	-	755,438	755,438	-	-	-	-	-	-	10	10
Other States[1/]	12	2,773,578	634,282	626,717	4,034,577	1	-	-	1	94	9	8	111
Total....	286	20,165,336	9,620,394	19,391,766	49,177,496	7	1	6	14	464	70	179	713

1/ Includes California, Colorado, New Mexico, Pennsylvania, Tennessee, Texas, Wisconsin, and Wyoming.

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TABLE 17. - Employment data and injury experience at lead-zinc mines, by States, 1954

State	Number of active mines	Number of men employed				Days active				Man-days worked			
		Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Arizona	44	371	98	2	471	263	280	20	265	97,523	27,465	40	125,028
California	7	86	20	6	112	109	89	25	101	9,388	1,796	150	11,334
Colorado	67	770	169	2	941	250	253	36	250	192,166	42,792	72	235,030
Idaho	73	1,685	396	8	2,089	285	265	71	280	479,405	104,928	570	584,903
Illinois	7	52	19	-	71	216	181	-	207	11,254	3,441	-	14,695
Kansas	10	207	20	-	227	277	282	-	277	57,236	5,641	-	62,877
Missouri	4	1,514	219	-	1,733	255	256	-	255	386,666	55,980	-	442,646
Montana	58	1,108	128	-	1,236	253	262	-	254	279,949	33,538	-	313,487
Nevada	19	84	50	8	142	242	313	69	257	20,310	15,635	550	36,495
New Jersey	3	309	69	4	382	224	222	257	224	69,336	15,334	1,028	85,698
Oklahoma	19	422	56	-	478	279	313	-	283	117,565	17,505	-	135,070
Tennessee	5	381	37	-	418	214	190	-	212	81,572	7,029	-	88,601
Utah	28	1,156	282	-	1,438	247	261	-	249	284,979	73,626	-	358,605
Washington	13	175	31	31	237	213	224	358	234	37,339	6,953	11,113	55,405
Wisconsin	10	144	35	5	184	232	224	100	227	33,351	7,847	500	41,698
Other States[1/]	17	529	45	22	596	273	281	258	273	144,626	12,640	5,665	162,931
Total	384	8,993	1,674	88	10,755	256	258	224	256	2,302,665	432,150	19,688	2,754,503

State	Number of active mines	Man-hours worked				Number of injuries							
						Fatal				Nonfatal			
		Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Arizona	44	779,568	220,830	320	1,000,718	-	-	-	-	135	9	-	144
California	7	74,864	14,331	1,200	90,395	-	-	-	-	4	-	-	4
Colorado	67	1,536,528	342,338	578	1,879,444	2	-	-	2	122	11	-	133
Idaho	73	3,834,330	845,300	4,975	4,684,605	6	-	-	6	410	35	-	445
Illinois	7	90,027	27,525	-	117,552	-	-	-	-	4	2	-	6
Kansas	10	457,888	45,128	-	503,016	-	-	-	-	30	-	-	30
Missouri	4	3,093,820	447,837	-	3,541,657	-	-	-	-	107	4	-	111
Montana	58	2,240,451	268,303	-	2,508,754	3	-	-	3	62	3	-	65
Nevada	19	158,680	125,094	4,400	288,174	2	-	-	2	15	3	-	18
New Jersey	3	554,685	122,676	8,224	685,585	1	-	-	1	54	2	-	56
Oklahoma	19	940,518	140,040	-	1,080,558	-	-	-	-	25	-	-	25
Tennessee	5	652,576	56,233	-	708,809	-	-	-	-	18	-	-	18
Utah	28	2,280,189	589,003	-	2,869,192	1	-	-	1	149	14	-	163
Washington	13	298,715	55,621	88,907	443,243	1	-	-	1	58	3	-	61
Wisconsin	10	266,800	62,776	4,000	333,576	1	-	-	1	12	-	-	12
Other States[1/]	17	1,157,006	101,121	45,317	1,303,444	2	-	-	2	128	2	-	130
Total	384	18,416,645	3,464,156	157,921	22,038,722	19	-	-	19	1,333	88	-	1,421

1/ Includes Michigan, New Mexico, New York, and Virginia.

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TABLE 18. - Employment data and injury experience at miscellaneous metal mines, by States and Alaska, 1954

State	Number of active mines	Men employed				Days active				Man-days worked			
		Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Arizona	244	347	39	174	560	246	260	55	188	85,362	10,136	9,529	105,027
Arkansas	8	93	27	165	285	254	257	247	250	23,626	6,945	40,701	71,272
California	241	718	157	356	1,231	240	242	118	205	172,312	38,031	42,099	252,442
Colorado	240	1,150	373	16	1,539	262	288	150	267	300,844	107,378	2,392	410,614
Florida	3	-	-	81	81	-	-	347	347	-	-	28,123	28,123
Idaho	9	74	21	24	119	281	285	135	252	20,765	5,981	3,241	29,987
Montana	13	714	95	2	811	273	275	165	273	195,159	26,146	329	221,634
Nevada	122	665	97	155	917	263	290	213	257	174,834	28,125	33,091	236,050
New Mexico	101	195	27	161	383	290	282	117	217	56,635	7,608	18,884	83,127
Oregon	10	28	4	15	47	182	218	159	177	5,086	872	2,378	8,336
South Dakota	59	-	-	59	59	-	-	1	1	-	-	59	59
Utah	44	196	55	14	265	267	264	68	256	52,350	14,541	950	67,841
Other States[1/]	11	502	57	24	583	280	284	221	278	140,590	16,170	5,304	162,064
Total	1,105	4,682	952	1,246	6,880	262	275	150	244	1,227,563	261,933	187,080	1,676,576

State	Number of active mines	Man-hours worked				Number of injuries							
						Fatal				Nonfatal			
		Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Arizona	244	683,045	81,092	75,032	839,169	3	-	-	3	37	2	-	39
Arkansas	8	189,008	55,558	325,602	570,168	-	-	-	-	4	1	2	7
California	241	1,386,819	307,527	337,459	2,031,805	-	-	-	-	121	23	18	162
Colorado	240	2,405,357	859,052	18,316	3,282,725	3	-	-	3	237	15	1	253
Florida	3	-	-	224,987	224,987	-	-	-	-	-	-	7	7
Idaho	9	166,115	47,851	25,930	239,896	-	-	-	-	27	1	2	30
Montana	13	1,571,604	200,910	2,629	1,775,143	3	-	-	3	143	9	7	159
Nevada	122	1,398,749	224,852	265,785	1,889,386	1	-	-	1	179	14	8	201
New Mexico	101	453,079	60,862	151,108	665,049	-	-	-	-	62	1	12	75
Oregon	10	40,689	6,976	19,227	66,892	-	-	-	-	3	-	-	3
South Dakota	59	-	-	472	472	-	-	-	-	-	-	-	-
Utah	44	418,809	116,334	7,600	542,743	1	-	-	1	31	4	-	35
Other States[1/]	11	1,124,167	129,237	42,277	1,295,681	3	-	-	3	90	7	-	97
Total	1,105	9,837,441	2,090,251	1,496,424	13,424,116	14	-	-	14	934	77	57	1,068

1/ Includes Alabama, Alaska, Georgia, North Carolina, Tennessee, Virginia, and Washington.

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TABLE 19. - Employment and injury experience at nonmetal mines, by States, 1954

State	Number of operations	Average number of men working				Days active				Man-days worked			
		Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Arizona	33	93	13	36	142	212	233	221	216	19,688	3,034	7,939	30,661
Arkansas	3	198	41	49	288	274	274	300	278	54,252	11,234	14,714	80,200
California	78	244	89	285	618	271	333	223	257	66,035	29,636	63,436	159,107
Colorado	65	101	35	216	352	274	237	212	232	27,637	8,303	45,892	81,832
Florida	22	-	-	1,514	1,514	-	-	302	302	-	-	457,745	457,745
Georgia	7	20	8	50	78	227	229	189	203	4,540	1,830	9,432	15,802
Idaho	13	74	6	228	308	184	190	161	167	13,582	1,138	36,615	51,335
Illinois	17	333	61	-	394	197	198	-	197	65,592	12,085	-	77,677
Iowa	4	-	-	122	122	-	-	273	273	-	-	33,337	33,337
Kansas	8	105	17	4	126	264	272	69	259	27,711	4,617	274	32,602
Kentucky	7	167	78	104	349	99	86	184	121	16,512	6,719	19,136	42,367
Louisiana	10	104	1,088	30	1,222	257	363	260	352	26,717	395,403	7,800	429,920
Michigan	5	198	34	112	344	293	294	311	299	58,027	9,994	34,851	102,872
Missouri	19	17	11	165	193	253	297	267	268	4,309	3,265	44,117	51,691
Montana	15	291	59	58	408	253	258	263	256	73,736	15,244	15,267	104,247
Nevada	40	44	6	192	242	236	289	248	247	10,364	1,736	47,586	59,686
New Hampshire	5	31	8	21	60	281	298	255	274	8,710	2,380	5,361	16,451
New Mexico	34	1,104	228	52	1,384	349	351	211	344	385,774	80,015	10,972	476,761
New York	13	593	71	23	687	273	274	267	273	162,122	19,467	6,143	187,732
North Carolina	62	101	26	302	429	263	248	225	235	26,558	6,443	67,953	100,954
Oklahoma	7	-	-	112	112	-	-	292	292	-	-	32,750	32,750
South Dakota	40	37	9	83	129	258	290	169	203	9,559	2,613	14,052	26,224
Tennessee	21	-	-	376	376	-	-	214	214	-	-	80,307	80,307
Texas	19	33	1,403	149	1,585	272	365	261	353	8,982	512,107	38,925	560,014
Utah	20	214	92	68	374	267	249	256	260	57,089	22,881	17,406	97,376
Vermont	4	28	3	120	151	259	233	251	252	7,256	698	30,160	38,114
Virginia	5	140	3	121	264	293	255	247	272	41,014	766	29,926	71,706
Washington	8	-	-	76	76	-	-	273	273	-	-	20,737	20,737
Wyoming	8	89	17	176	282	255	256	248	251	22,680	4,352	43,652	70,684
Other States[1]	29	40	6	155	201	307	283	212	233	12,283	1,698	32,911	46,892
Total	621	4,399	3,412	4,999	12,810	275	339	254	284	1,210,729	1,157,658	1,269,396	3,637,783

State	Number of operations	Man-hours worked				Number of injuries: Fatal				Number of injuries: Nonfatal			
		Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total	Underground	Surface	Opencut	Total
Arizona	33	157,503	24,272	63,496	245,271	-	-	-	-	1	-	1	2
Arkansas	3	434,016	89,872	120,588	644,476	-	-	-	-	61	-	7	68
California	78	527,636	237,083	532,383	1,297,102	1	-	1	2	45	4	10	59
Colorado	65	221,094	66,422	367,627	655,143	1	-	-	1	14	2	1	17
Florida	22	-	-	3,779,557	3,779,557	-	-	-	-	-	-	23	23
Georgia	7	45,400	18,300	84,918	148,618	-	-	-	-	8	-	2	10
Idaho	13	108,654	9,104	293,405	411,163	-	-	-	-	9	1	17	27
Illinois	17	524,732	96,676	-	621,408	-	-	-	-	19	6	-	25
Iowa	4	-	-	266,695	266,695	-	-	-	-	-	-	2	2
Kansas	8	221,365	36,938	2,194	260,497	-	-	-	-	11	1	-	12
Kentucky	7	132,090	55,346	156,032	343,468	-	-	-	-	7	1	3	11
Louisiana	10	213,730	3,370,526	62,400	3,646,656	-	-	-	-	18	100	-	118
Michigan	5	468,216	80,524	278,817	827,557	1	-	-	1	12	-	-	12
Missouri	19	34,472	26,124	379,198	439,794	-	-	-	-	1	-	14	15
Montana	15	590,387	121,954	122,136	834,477	-	-	-	-	18	-	3	21
Nevada	40	82,912	13,887	382,280	479,079	-	-	-	-	10	-	8	18
New Hampshire	5	70,722	19,045	42,886	132,653	-	-	-	-	4	2	3	9
New Mexico	34	3,086,184	640,114	89,404	3,815,702	1	-	-	1	164	19	1	184
New York	13	1,311,014	158,144	49,140	1,518,298	-	-	-	-	39	7	1	47
North Carolina	62	212,558	51,495	549,846	813,899	-	-	-	-	7	1	24	32
Oklahoma	7	-	-	276,752	276,752	-	-	1	1	-	-	5	5
South Dakota	40	76,475	20,904	112,423	209,802	-	-	1	1	-	-	16	16
Tennessee	21	-	-	649,694	649,694	-	-	-	-	-	-	1	1
Texas	19	71,857	4,096,857	312,655	4,481,369	-	-	-	-	1	117	18	136
Utah	20	456,718	183,043	139,241	779,002	1	-	-	1	30	2	2	34
Vermont	4	61,608	6,282	241,279	309,169	-	-	-	-	6	-	6	12
Virginia	5	328,113	6,131	269,262	603,506	-	-	1	1	-	-	16	16
Washington	8	-	-	121,029	121,029	-	-	-	-	-	-	3	3
Wyoming	8	181,442	34,816	349,402	565,660	-	-	-	-	4	-	6	10
Other States[1]	29	98,258	13,584	274,645	386,487	-	-	-	-	1	-	10	11
Total	621	9,717,156	9,477,443	10,369,384	29,563,983	5	-	4	9	490	263	203	956

1/ Includes Connecticut, Maine, Maryland, Nebraska, New Jersey, Ohio, Oregon, Pennsylvania, and South Carolina.

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Selected Injury Data

TABLE 20. - Employment data and injury experience at miscellaneous metal mines, by metals and location, 1954

Metal	Number of active operations	Men at work				Average days active				Man-days worked				Man-hours worked			
		Under-ground	Open-cut	Sur-face	Total	Under-ground	Open-cut	Sur-face	Total	Under-ground	Opencut	Surface	Total	Under-ground	Opencut	Surface	Total
Bauxite.....	12	93	168	27	288	254	233	257	242	23,626	39,205	6,945	69,776	189,008	313,477	55,558	558,043
Chromite.....	86	232	131	31	394	245	83	235	190	56,875	10,827	7,274	74,976	465,283	86,842	49,940	602,065
Manganese.....	319	939	420	123	1,482	264	110	266	220	247,776	46,035	32,681	326,492	1,982,342	368,324	261,446	2,612,112
Mercury.....	53	279	44	30	353	256	164	247	244	71,397	7,212	7,396	86,005	573,227	57,137	59,076	689,440
Molybdenum.....	4	420	-	220	640	315	-	316	315	132,203	-	69,608	201,811	1,057,623	-	556,864	1,614,487
Pyrite.....	2	126	-	44	170	168	-	247	188	21,161	-	10,880	32,041	169,290	-	87,042	256,332
Titanium.....	4	-	83	-	83	-	348	-	348	-	28,896	-	28,896	-	231,174	-	231,174
Tungsten.....	345	1,660	246	266	2,172	265	147	272	252	439,679	36,185	72,428	548,292	3,523,268	290,541	582,553	4,396,362
Vanadium-uranium	205	916	53	205	1,174	253	207	260	252	231,933	10,979	53,241	296,153	1,854,099	87,824	425,933	2,367,856
Minor metals....	65	4	90	1	95	250	80	250	89	1,000	7,166	250	8,416	8,000	56,505	2,000	66,505
Other metals[1/]..	10	13	11	5	29	147	52	246	128	1,913	575	1,230	3,718	15,301	4,600	9,839	29,740
Total.....	1,105	4,682	1,246	952	6,880	262	150	275	244	1,227,563	187,080	261,933	1,676,576	9,837,441	1,496,424	2,090,251	13,424,116

Metal	Average hours per man per day				Average hours worked per man per year				Number of injuries							
									Fatal				Nonfatal			
	Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total
Bauxite.....	8.00	8.00	8.00	8.00	2,032	1,866	2,058	1,938	-	-	-	-	4	2	1	7
Chromite.....	8.18	8.02	6.87	8.03	2,006	663	1,611	1,528	5	-	-	5	72	3	2	77
Manganese.....	8.00	8.00	8.00	8.00	2,111	877	2,126	1,763	3	-	-	3	139	6	9	154
Mercury.....	8.03	7.92	7.99	8.02	2,055	1,299	1,969	1,953	-	-	-	-	64	-	7	71
Molybdenum.....	8.00	-	8.00	8.00	2,518	-	2,531	2,523	3	-	-	3	137	-	9	146
Pyrite.....	8.00	-	8.00	8.00	1,344	-	1,978	1,508	-	-	-	-	6	-	6	12
Titanium.....	-	8.00	-	8.00	-	2,785	-	2,785	-	-	-	-	-	7	-	7
Tungsten.....	8.01	8.03	8.04	8.02	2,122	1,181	2,190	2,024	2	-	-	2	361	29	30	420
Vanadium-uranium	7.99	8.00	8.00	8.00	2,024	1,657	2,078	2,017	1	-	-	1	148	6	12	166
Minor metals....	8.00	7.89	8.00	7.90	2,000	628	2,000	700	-	-	-	-	-	3	-	3
Other metals[1/]..	8.00	8.00	8.00	8.00	1,177	418	1,968	1,026	-	-	-	-	3	1	1	5
Total.....	8.01	8.00	7.98	8.00	2,101	1,201	2,196	1,951	14	-	-	14	934	57	77	1,068

1/ Includes antimony and cobalt.

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TABLE 21. - Employment data and injury experience at nonmetallic mines, by location and by nonmetals, 1954

Nonmetals	Number of active operations	Men at work				Average days active				Man-days worked				Man-hours worked			
		Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total
Abrasives	76	18	472	3	493	256	246	258	246	4,602	116,080	774	121,456	36,815	885,807	6,192	928,814
Asbestos	18	57	129	8	194	196	247	217	231	11,168	31,830	1,734	44,732	89,345	254,639	13,872	357,856
Asphalt	9	64	176	61	301	250	211	243	226	15,996	37,148	14,807	67,951	127,971	300,129	118,451	546,551
Barite	31	242	260	47	549	270	264	269	267	65,454	68,605	12,634	146,693	524,133	593,334	101,072	1,218,539
Feldspar-mica-quartz	166	138	469	41	648	244	184	274	203	33,659	86,517	11,223	131,399	270,409	717,002	89,745	1,077,156
Fluorspar	60	668	95	188	951	183	232	160	183	122,357	22,040	30,052	174,449	978,840	176,328	242,003	1,397,171
Gypsum	54	629	577	64	1,270	279	279	276	279	175,369	161,082	17,683	354,134	1,410,216	1,293,528	142,047	2,845,791
Magnesite	3	-	108	-	108	-	252	-	252	-	27,186	-	27,186	-	217,488	-	217,488
Phosphate rock	56	383	2,151	67	2,601	237	272	248	266	90,773	585,476	16,600	692,849	726,183	4,806,417	132,800	5,665,400
Potash	6	1,163	-	239	1,402	351	-	351	351	408,419	-	84,003	492,422	3,267,348	-	672,018	3,939,366
Salt	17	554	40	100	694	276	309	286	279	152,880	12,371	28,625	193,876	1,233,479	120,648	229,004	1,583,131
Sulfur	11	-	39	2,457	2,496	-	161	365	362	-	6,289	897,485	903,774	-	50,309	7,387,181	7,437,490
Talc and soapstone	63	249	202	48	499	271	234	263	255	67,574	47,279	12,627	127,480	552,604	407,208	107,770	1,067,582
Minor nonmetals[1/]	51	234	281	89	604	267	240	330	264	62,478	67,493	29,411	159,382	499,813	546,547	235,288	1,281,648
Total	621	4,399	4,999	3,412	12,810	275	254	339	284	1,210,729	1,269,396	1,157,658	3,637,783	9,717,156	10,369,384	9,477,443	29,563,983

Nonmetals	Average hours per men per day				Average hours worked per man per year				Number of injuries							
									Fatal				Nonfatal			
	Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total	Underground	Opencut	Surface	Total
Abrasives	8.00	7.63	8.00	7.65	2,045	1,877	2,064	1,884	-	-	-	-	-	10	-	10
Asbestos	8.00	8.00	8.00	8.00	1,567	1,974	1,734	1,845	-	-	-	-	1	6	-	7
Asphalt	8.00	8.08	8.00	8.04	2,000	1,705	1,942	1,816	1	-	-	1	12	19	2	33
Barite	8.01	8.65	8.00	8.31	2,166	2,282	2,150	2,220	-	-	-	-	62	23	-	85
Feldspar-mica-quartz	8.03	8.29	8.00	8.20	1,959	1,529	2,189	1,662	-	1	-	1	6	32	2	40
Fluorspar	8.00	8.00	8.05	8.01	1,465	1,856	1,287	1,469	2	-	-	2	54	1	9	64
Gypsum	8.04	8.03	8.03	8.04	2,242	2,242	2,219	2,241	1	1	-	2	26	15	-	41
Magnesite	-	8.00	-	8.00	-	2,014	-	2,014	-	-	-	-	-	4	-	4
Phosphate rock	8.00	8.21	8.00	8.18	1,896	2,235	1,982	2,178	-	-	-	-	44	45	1	90
Potash	8.00	-	8.00	8.00	2,809	-	2,812	2,810	-	-	-	-	160	-	19	179
Salt	8.07	9.75	8.00	8.17	2,226	3,016	2,290	2,281	-	-	-	-	48	-	6	54
Sulfur	-	8.00	8.23	8.23	-	1,290	3,007	2,980	-	1	-	1	-	3	217	220
Talc and soapstone	8.18	8.61	8.53	8.37	2,219	2,016	2,245	2,139	1	1	-	2	56	22	6	84
Minor nonmetals[1/]	8.00	8.10	8.00	8.04	2,136	1,945	2,644	2,122	-	-	-	-	21	23	1	45
Total	8.03	8.17	8.19	8.13	2,209	2,074	2,778	2,308	5	4	-	9	490	203	263	956

1/ Includes greensand, kyanite, mineral pigments, olivine, spodumene, gem stones, vermiculite, and perlite.

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CLAY

Clay, a natural substance or soft rock which, when finely ground and mixed with water, forms a pasty, moldable mass that preserves its shape when air-dried, is found in many States and has many uses, depending on its purity and chemical properties. Many kinds of clay are produced. This circular does not attempt to break it down into different classes; instead, a simplified classification is used by the Bureau of Mines, Branch of Accident Analysis, for statistical canvassing. Employment data and injury experience at clay mines in the United States for the calendar year 1954 are presented in table 22.

TABLE 22. - Employment data and injury experience at clay mines in the United States, 1954

	Number of operations	Men at work	Man-days worked	Average days active	Man-hours worked	Number of injuries		Injury frequency rates	
						Fatal	Non-fatal	Fatal	Non-fatal
Underground ...	368	3,397	719,896	212	5,793,900	1	200	0.17	34.52
Opencut	424	4,895	1,215,446	248	9,927,542	1	545	.10	54.90
Total	792	8,292	1,935,342	233	15,721,442	2	745	.13	47.39

PLACER MINES

The nonfatal-injury experience at placer mines in 1954 improved over that reported for 1953, with a decline of 55 percent. In 1954 there were 84 nonfatal disabling injuries compared with 188 the previous year. Fatal injuries were the same for both years; one worker was killed each year. Employment, measured by the number of men employed, was 21 percent lower in 1954 than in 1953. The average number of days worked at placer mines was 3 more than in 1953, with approximately the same length of shift each year. Tables 23-26 give additional details on the employment data and injury experience for 1953 and 1954.

TABLE 23. - Employment data and injury experience at placer mines in the United States and Alaska, 1954

State	Active mines	Men employed	Man-days worked	Average days active	Man-hours worked	Injuries		Frequency rate	
						Fatal	Non-fatal	Fatal	Non-fatal
Alaska	188	1,361	265,820	195	2,126,160	1	46	0.47	21.64
California	47	422	126,353	299	1,007,952	-	20	-	19.84
Idaho	33	96	20,284	211	162,953	-	4	-	24.55
Nevada	8	46	13,814	300	110,868	-	10	-	90.20
Oregon	37	69	9,821	142	78,562	-	4	-	50.92
Other States1/ ..	41	55	4,197	76	33,087	-	-	-	-
Total	354	2,049	440,289	215	3,519,582	1	84	.28	23.87

1/ Includes Arizona, Colorado, Montana, New Mexico, South Dakota, and Utah.

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TABLE 24. - Men employed, man-days worked, man-hours worked, and fatal and nonfatal injuries, at placer mines, by location, 1954

	Under-ground	Surface	Dredging	Hydrau-licking	Other methods	Total
Men employed	28	7	1,395	81	538	2,049
Man-days of employment	2,972	531	364,014	7,363	65,409	440,289
Average days active	106	76	261	91	122	215
Man-hours of employment	21,794	3,888	2,912,487	58,904	522,509	3,519,582
Number of fatalities	-	-	1	-	-	1
Number of injuries	-	-	80	3	1	84
Fatalities per million man-hours	-	-	0.34	-	-	0.28
Injuries per million man-hours	-	-	27.47	50.93	1.91	23.87
Number of active mines	16	5	51	55	227	354

TABLE 25. - Number of injuries at placer mines in the United States and Alaska, by location and degree of injury, 1953 and 1954

	1953						1954					
		Nonfatal				Total fatal and non-fatal		Nonfatal				Total fatal and non-fatal
	Fatal	Permanent total	Permanent partial	Tempo-rary	Total non-fatal		Fatal	Permanent total	Permanent partial	Tempo-rary	Total non-fatal	
Underground	-	-	-	-	-	-	-	-	-	-	-	-
Surface	-	-	-	-	-	-	-	-	-	-	-	-
Dredging	1	-	2	186	188	189	1	-	-	80	80	81
Hydraulicking	-	-	-	-	-	-	-	-	-	3	3	3
Other methods	-	-	-	-	-	-	-	-	-	1	1	1
Total	1	-	2	186	188	189	1	-	-	84	84	85

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TABLE 26. - Number of fatal and nonfatal injuries at placer mines, by location and agency, 1953 and 1954

Agency	1953		1954	
	Fatal	Nonfatal	Fatal	Nonfatal
Underground:				
Fall of rock or ore from roof or wall	-	-	-	-
Handling rock or ore	-	-	-	-
Handtools	-	-	-	-
Explosives	-	-	-	-
Haulage	-	-	-	-
Falling down chute, winze, raise, or stope	-	-	-	-
Other falls of persons	-	-	-	-
Run of ore from raise, chute, or pocket	-	-	-	-
Drilling	-	-	-	-
Electricity	-	-	-	-
Machinery (other than locomotives or drills)	-	-	-	-
Mine fires	-	-	-	-
Suffocation from natural gases	-	-	-	-
Inrush of water	-	-	-	-
Stepping on nail	-	-	-	-
Handling materials (other than rock or ore) and equipment	-	-	-	-
Other causes	-	-	-	-
Total underground	-	-	-	-
Shaft:				
Falling down shaft	-	-	-	-
Objects falling down shaft	-	-	-	-
Breaking of cables	-	-	-	-
Overwinding	-	-	-	-
Cage, skip, or bucket	-	-	-	-
Other causes	-	-	-	-
Total shaft	-	-	-	-
Surface:				
Mine cars, mine locomotives, or aerial trams	-	-	-	-
Railway cars or locomotives	-	-	-	-
Run or fall of ore in or from bins	-	-	-	-
Falls of persons	-	-	-	-
Stepping on nail	-	-	-	-
Handtools	-	-	-	-
Electricity	-	-	-	-
Machinery	-	-	-	-
Handling materials and equipment	-	-	-	-
Other causes	-	-	-	-
Total surface	-	-	-	-

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TABLE 26. - Number of fatal and nonfatal injuries at placer mines, by location and agency, 1953 and 1954 (Con.)

Agency	1953		1954	
	Fatal	Nonfatal	Fatal	Nonfatal
Dredging:				
Machinery	-	15	-	11
Electricity	-	2	-	-
Boiler explosions or bursting steam pipes	-	-	-	-
Falls of persons	1	30	-	11
Handtools	-	29	-	9
Handling materials and equipment	-	37	1	15
Other causes	-	75	-	34
Total dredging	1	188	1	80
Hydraulicking:				
Cave of bank	-	-	-	-
Explosives	-	-	-	-
Hydraulic giants	-	-	-	3
Falls of persons	-	-	-	-
Rock while handling	-	-	-	-
Handtools	-	-	-	-
Machinery, derrick, etc.	-	-	-	-
Handling materials (other than rock or ore) and equipment	-	-	-	-
Other causes	-	-	-	-
Total hydraulicking	-	-	-	3
Other methods	-	-	-	1
Grand total	1	188	1	84

Mining Methods

Mining methods are classified in this statistical circular, by location, as follows:

Underground mine

Open stoping.
Timbered stoping.
Filled stoping.
Shrinkage stoping.
Caving methods.
Combined methods.
Not stated.

Opencut mine

Shovel or dragline.
Scrapers.
Hand loading.
Other methods.
Not stated.

Salient statistics on injuries, injury rates, and employment data over a 5-year period (1950-54) are combined in table 27.

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TABLE 27. - Employment data and injury experience in the metal and nonmetal industries of the United States and Alaska, by location, size group, and mining method, 1950-54

Location, size group, and mining method	Number of operations					Men employed					Average days active					Man-days worked				
	1950	1951	1952	1953	1954	1950	1951	1952	1953	1954	1950	1951	1952	1953	1954	1950	1951	1952	1953	1954
UNDERGROUND																				
25 or more men:																				
Open stoping	122	84	99	100	117	10,413	9,207	9,954	10,135	9,921	271	277	260	271	256	2,819,118	2,550,899	2,590,028	2,743,692	2,543,709
Timbered stoping	41	36	31	27	44	5,743	4,262	4,227	2,649	3,568	264	248	238	257	212	1,517,276	1,055,459	1,005,221	681,760	757,125
Filled stoping	6	13	9	11	12	621	1,851	1,251	1,524	1,686	282	302	290	294	284	174,978	558,954	363,088	448,757	478,855
Shrinkage stoping	35	31	17	21	23	1,905	1,747	1,493	1,705	1,718	275	289	257	281	259	523,838	504,202	383,771	478,547	445,324
Caving methods	29	30	30	30	32	6,179	6,378	6,520	7,212	6,466	264	287	259	271	228	1,629,947	1,829,891	1,691,161	1,953,464	1,471,949
Combined methods	56	65	70	58	44	6,013	6,653	8,120	6,902	5,153	284	301	298	275	289	1,706,852	2,003,184	2,421,271	1,899,075	1,490,146
Not stated	138	631	637	376	378	5,879	7,851	7,827	6,966	6,893	275	272	279	283	256	1,614,157	2,139,029	2,184,735	1,968,572	1,765,247
Total	427	890	893	623	650	36,753	37,949	39,392	37,093	35,405	272	280	270	274	253	9,986,166	10,641,618	10,639,275	10,173,867	8,952,355
OPENCUT																				
25 or more men:																				
Shovel or dragline	191	218	232	238	194	16,960	19,669	20,775	21,294	19,689	304	299	284	297	255	5,155,881	5,875,824	5,900,516	6,321,063	5,017,409
Scrapers	2	1	1	1	(1)	63	29	30	37	(1)	216	281	300	260	-	13,638	8,149	9,000	9,620	(1)
Hand loading	7	2	2	(1)	(1)	117	70	64	(1)	(1)	279	222	233	-	-	32,672	15,505	14,917	(1)	(1)
Other methods	4	14	5	5	8	207	377	200	190	331	244	243	332	310	274	50,446	91,609	66,390	58,855	90,734
Not stated	96	121	182	258	309	948	1,088	862	980	996	241	251	143	216	183	228,595	273,628	123,143	211,316	181,995
Total	300	356	422	502	511	18,295	21,233	21,931	22,501	21,016	300	295	279	293	252	5,481,232	6,264,715	6,113,966	6,600,854	5,290,138
UNDERGROUND																				
1 to 24 men:																				
Open stoping	155	123	133	187	208	984	784	968	1,063	1,083	227	249	229	188	227	223,856	195,066	221,391	199,867	245,715
Timbered stoping	107	98	72	127	123	409	361	307	519	529	186	221	212	219	225	76,059	79,911	64,931	113,907	118,880
Filled stoping	46	43	26	28	28	217	194	114	115	105	233	243	228	232	201	50,526	47,204	26,002	26,707	21,093
Shrinkage stoping	43	38	36	46	42	252	196	287	267	292	236	213	238	243	240	59,483	41,721	68,294	65,006	70,078
Caving methods	7	5	4	9	12	58	16	17	59	48	233	182	237	192	213	13,506	2,912	4,033	11,327	10,209
Combined methods	153	160	138	159	167	809	746	729	864	713	246	242	231	245	234	198,872	180,431	168,233	211,954	167,021
Not stated	848	598	631	627	521	1,710	1,412	1,973	1,806	1,372	144	162	188	162	167	246,760	228,099	371,888	293,457	228,673
Total	1,359	1,065	1,040	1,183	1,101	4,439	3,709	4,395	4,693	4,142	196	209	210	197	208	869,062	775,344	924,772	922,225	861,669
OPENCUT																				
1 to 24 men:																				
Shovels or dragline	147	171	175	204	213	1,113	1,346	1,507	1,673	1,546	232	227	206	198	212	257,720	305,026	309,965	330,527	327,502
Scrapers	34	30	37	57	59	125	106	131	224	216	205	221	212	189	190	25,686	23,392	27,729	42,233	41,102
Hand loading	60	48	80	79	78	251	188	235	258	233	165	156	130	90	128	41,377	29,279	30,580	23,347	29,859
Other methods	47	46	37	64	100	270	269	256	295	386	211	187	223	211	193	57,052	50,367	57,141	62,133	74,353
Not stated	185	157	204	303	286	692	638	683	925	587	204	190	179	157	156	141,171	121,066	121,958	144,944	91,470
Total	473	452	533	707	736	2,451	2,547	2,812	3,375	2,968	213	208	195	179	190	523,006	529,130	547,373	603,184	564,286

Location, size group, and mining method	Man-hours worked					Number of injuries										Injury frequency rates									
						Fatal					Nonfatal					Fatal					Nonfatal				
	1950	1951	1952	1953	1954	1950	1951	1952	1953	1954	1950	1951	1952	1953	1954	1950	1951	1952	1953	1954	1950	1951	1952	1953	1954
UNDERGROUND																									
25 or more men:																									
Open stoping	22,596,374	20,406,495	20,691,854	22,011,917	20,353,611	23	24	22	24	9	1,127	929	984	1,085	1,070	1.02	1.18	1.06	1.09	.44	49.88	45.52	47.55	49.29	52.57
Timbered stoping	12,141,905	8,459,565	8,067,201	5,451,673	6,066,113	6	5	6	5	2	708	415	375	245	349	.49	.59	.74	.92	.33	58.31	49.06	46.48	44.94	57.53
Filled stoping	1,399,824	4,471,645	2,904,704	3,590,865	3,824,997	-	-	2	4	3	102	368	142	223	215	-	-	.69	1.11	.78	72.87	82.30	48.89	62.10	56.21
Shrinkage stoping	4,164,237	4,013,705	3,355,842	3,827,316	3,562,588	9	3	8	11	3	509	618	420	468	340	2.16	.75	2.38	2.87	.84	122.23	153.97	125.15	122.28	95.44
Caving methods	13,011,984	14,647,267	13,552,357	15,627,441	11,775,626	9	9	13	8	3	624	576	696	751	531	.69	.61	.96	.51	.25	47.96	39.32	51.36	48.06	45.09
Combined methods	13,364,189	15,814,785	19,394,748	15,239,242	11,942,252	16	15	20	12	18	1,337	1,667	1,926	1,648	1,056	1.20	.95	1.03	.79	1.51	100.04	105.41	99.31	108.14	88.43
Not stated	12,913,277	17,145,786	17,479,428	15,749,804	14,126,382	14	18	23	13	20	1,055	952	908	675	619	1.08	1.05	1.32	.83	1.42	81.70	55.52	51.95	42.86	43.82
Total	79,591,790	84,959,248	85,446,134	81,498,258	71,651,569	77	74	94	77	58	5,462	5,525	5,451	5,095	4,180	.97	.87	1.10	.94	.81	68.63	65.03	63.79	62.52	58.34
OPENCUT																									
25 or more men:																									
Shovel or dragline	41,315,127	47,272,865	47,433,487	50,854,458	40,354,199	11	15	14	14	16	490	692	633	681	441	.27	.32	.30	.28	.40	11.86	14.64	13.35	13.39	10.93
Scrapers	112,236	65,192	72,000	76,960	(1)	-	-	-	-	(1)	11	7	2	2	(1)	-	-	-	-	-	98.01	107.38	27.78	25.99	-
Hand loading	261,373	124,042	119,334	(1)	(1)	-	-	-	(1)	(1)	11	1	3	(1)	(1)	-	-	-	-	-	42.09	8.06	25.14	-	-
Other methods	412,164	735,309	531,119	470,151	725,881	1	-	-	-	1	19	10	41	21	29	2.43	-	-	-	1.38	46.10	13.60	77.20	44.67	39.95
Not stated	1,847,463	2,226,204	983,064	1,773,914	1,500,724	1	1	-	-	1	87	83	25	48	34	-	.45	-	-	.67	47.09	37.28	25.43	27.06	22.66
Total	43,948,363	50,423,612	49,139,004	53,175,483	42,580,804	12	16	14	14	18	618	793	704	752	504	.27	.32	.28	.26	.42	14.06	15.73	14.33	14.14	11.84
UNDERGROUND																									
1 to 24 men:																									
Open stoping	1,789,727	1,569,563	1,779,045	1,602,656	1,959,438	1	3	1	4	2	148	101	103	118	107	.56	1.91	.56	2.50	1.02	82.69	64.35	57.90	73.63	54.61
Timbered stoping	603,748	637,844	516,936	910,837	951,696	3	-	-	1	1	60	78	25	90	80	4.97	-	-	1.10	1.05	99.38	122.29	48.36	98.81	84.06
Filled stoping	406,653	378,434	208,454	211,764	168,762	-	-	-	-	-	74	37	13	4	3	-	-	-	-	-	181.97	97.77	62.36	18.89	17.78
Shrinkage stoping	476,048	335,732	546,269	520,434	565,210	-	2	2	1	2	46	23	65	51	80	-	5.96	3.66	1.92	3.54	96.63	68.51	118.99	98.00	141.54
Caving methods	115,118	23,059	32,665	90,607	83,912	-	-	-	-	-	1	1	3	6	7	-	-	-	-	-	8.69	43.37	91.84	66.22	83.42
Combined methods	1,608,675	1,460,792	1,348,317	1,703,168	1,341,623	1	4	4	4	3	161	125	131	136	119	.62	2.74	2.97	2.35	2.24	100.08	85.57	97.16	79.85	88.70
Not stated	1,973,775	1,834,321	2,972,638	2,352,760	1,834,853	3	1	10	6	6	94	97	145	54	52	1.52	.55	3.36	2.55	3.27	47.62	52.88	48.78	22.95	28.34
Total	6,973,744	6,239,745	7,404,324	7,392,226	6,905,494	8	10	17	16	14	584	462	485	459	448	1.15	1.60	2.30	2.16	2.03	83.74	74.04	65.50	62.09	64.88
OPENCUT																									
1 to 24 men:																									
Shovels or dragline	2,143,671	2,531,961	2,574,436	2,771,323	2,694,827	2	2	1	-	2	87	112	132	103	95	.93	.79	.39	-	.74	40.58	44.23	51.27	37.17	35.25
Scrapers	218,678	192,478	226,772	353,513	334,377	1	-	1	-	-	4	6	7	9	15	4.57	-	4.41	-	-	18.29	31.17	30.87	25.46	44.86
Hand loading	344,242	239,982	249,171	181,933	240,938	-	-	-	-	-	27	15	20	4	9	-	-	-	-	-	78.43	62.50	80.27	21.99	37.35
Other methods	468,310	423,380	470,619	513,666	567,161	-	-	-	2	1	16	17	7	21	18	-	-	-	3.89	1.76	34.17	40.15	14.87	40.88	31.74
Not stated	1,180,548	1,041,463	1,048,656	1,185,490	756,622	1	-	-	-	-	30	20	25	11	17	.85	-	-	-	-	25.41	19.20	23.84	9.28	22.47
Total	4,355,449	4,429,264	4,569,654	5,005,925	4,593,925	4	2	2	2	3	164	170	191	148	154	.92	.45	.44	.40	.65	37.65	38.38	41.80	29.56	33.52

1/ None reported for 1953 and 1954.

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HISTORICAL INJURY EXPERIENCE IN THE METAL AND NONMETAL INDUSTRIES

As previously stated, statistical data on injuries and related employment at metal and nonmetal mines first became available when the Bureau of Mines received reports from the operating companies in 1911.

Beginning in 1931, when information on man-hours was first supplied to the Bureau, the injury-frequency rate per million man-hours of worktime varied considerably from year to year until 1940, after which a decline was noted. In 1946 and 1947 the rate increased slightly, with a steady decline in the last 5 years; in 1954 the lowest overall injury-frequency rate per million man-hours of worktime was reported since complete records of the industry were supplied. Employment data and injury experience from 1911-54 are grouped in table 28.

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TABLE 28. - Employment and injury data on metal and nonmetallic mines (except coal mines) in the United States and Alaska, 1911-54[1/]

Year	Men at work	Average days active	Man-days worked	Average length of shift	Man-hours worked	Number of injuries		Frequency rates per million man-hours	
						Fatal	Nonfatal	Fatal	Nonfatal
1911	165,979	282	46,826,573	-	-	695	26,577	-	-
1912	169,199	287	48,498,510	-	-	631	30,724	-	-
1913	191,276	288	55,077,855	-	-	683	32,971	-	-
1914	158,115	271	42,785,840	-	-	559	30,216	-	-
1915	152,118	280	42,599,015	-	-	553	35,295	-	-
1916	204,685	282	57,736,425	-	-	697	48,237	-	-
1917	200,579	287	57,625,811	-	-	852	46,286	-	-
1918	182,606	297	54,301,748	-	-	646	42,915	-	-
1919	145,262	279	40,461,350	-	-	468	31,506	-	-
1920	136,583	296	40,361,893	-	-	425	32,562	-	-
1921	93,929	238	22,352,702	-	-	230	18,604	-	-
1922	105,697	276	29,141,293	-	-	344	26,080	-	-
1923	123,279	297	36,559,805	-	-	367	33,563	-	-
1924	123,128	290	35,734,008	-	-	418	33,118	-	-
1925	126,713	293	37,172,359	-	-	371	35,132	-	-
1926	127,823	291	37,160,978	-	-	430	30,350	-	-
1927	119,699	284	34,033,963	-	-	352	25,133	-	-
1928	113,866	288	32,803,610	-	-	273	22,483	-	-
1929	118,735	292	34,618,120	-	-	350	23,092	-	-
1930	103,233	270	27,869,982	-	-	271	15,594	-	-
1931	80,940	231	18,721,486	8.34	156,177,859	158	8,709	1.01	55.76
1932	53,288	208	11,095,167	8.30	92,038,326	107	5,014	1.16	54.48
1933	57,016	204	11,642,113	8.09	94,139,386	95	5,925	1.01	62.94
1934	66,645	221	14,723,215	7.89	116,146,400	116	7,892	1.00	67.95
1935	92,314	220	20,352,372	7.93	161,302,671	164	10,206	1.02	63.27
1936	100,932	250	25,209,905	8.03	202,358,725	199	14,650	.98	72.40
1937	118,429	252	29,856,610	8.02	239,544,432	219	18,055	.91	75.37
1938	103,027	228	23,505,864	8.01	188,170,166	156	12,722	.83	67.61
1939	111,909	233	26,032,368	7.95	206,835,123	173	13,710	.84	66.28
1940	120,120	242	29,046,466	7.94	230,727,699	223	14,766	.97	64.00
1941	125,290	255	31,953,717	7.94	253,677,669	230	15,772	.91	62.17
1942	112,446	280	31,441,708	7.98	251,186,841	237	13,957	.94	55.56
1943	100,593	290	29,216,048	8.02	234,240,893	220	13,004	.94	55.52
1944	81,674	288	23,521,772	8.03	188,786,844	147	10,177	.78	53.91
1945	71,665	289	20,688,791	8.02	165,908,259	112	8,067	.68	48.62
1946	76,546	255	19,534,629	8.05	157,282,937	116	8,714	.74	55.40
1947	83,404	277	23,121,886	8.04	185,833,522	138	9,601	.74	51.66
1948	83,386	283	23,556,636	8.04	189,300,254	119	8,807	.63	46.52
1949	83,741	256	21,407,270	8.00	171,316,256	79	8,065	.46	47.08
1950	80,269	275	22,034,189	8.00	176,220,617	103	7,849	.58	44.54
1951	84,103	281	23,642,139	8.02	189,547,732	112	8,175	.59	43.13
1952	87,073	268	23,358,546	8.03	187,602,968	131	7,855	.70	41.87
1953	85,294	273	23,286,550	8.03	187,093,067	114	7,583	.61	40.53
1954	79,420	251	19,931,447	8.03	160,052,471	95	5,950	.59	37.18

1/ Man-hours not available before 1931.

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APPENDIX

This section contains statistical data on the injury and related employment experience for the metal and nonmetal industries from 1943-53. Most of this information has not been published heretofore; it is presented at this time to preserve the continuity of the data for the industry published in Bureau of Mines Bulletin 461, Metal- and Nonmetal-Mine Accidents in the United States, 1942.

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TABLE 29. - Injury experience and salient statistics at all metal and nonmetal mines, 1943-53

	1943	1944	1945	1946	1947	1948
Number of injuries:						
Fatal	220	147	112	116	138	119
Nonfatal	13,004	10,177	8,067	8,714	9,601	8,807
Total	13,224	10,324	8,179	8,830	9,739	8,926
Frequency rates per million man-hours:						
Fatal	0.94	0.78	0.68	0.74	0.74	0.63
Nonfatal	55.52	53.91	48.62	55.40	51.66	46.52
Total	56.45	54.69	49.30	56.14	52.41	47.15
Average number of men working daily	100,593	81,674	71,665	76,546	83,404	83,386
Man-hours worked	234,240,893	188,786,844	165,908,259	157,282,937	185,833,522	189,300,254
Man-days worked	29,216,048	23,521,772	20,688,791	19,534,629	23,121,886	23,556,636
Average number of days worked	290	288	289	255	277	283
Average hours per man-year	2,329	2,311	2,315	2,055	2,228	2,270
Average hours per man-day	8.02	8.03	8.02	8.05	8.04	8.04
Number of active mines	3,959	3,357	2,725	3,169	3,735	3,169

	1949	1950	1951	1952	1953
Number of injuries:					
Fatal	79	103	112	131	114
Nonfatal	8,065	7,849	8,175	7,855	7,583
Total	8,144	7,952	8,287	7,986	7,697
Frequency rates per million man-hours:					
Fatal	0.46	0.58	0.59	0.70	0.61
Nonfatal	47.08	44.54	43.13	41.87	40.53
Total	47.54	45.13	43.72	42.57	41.14
Average number of men working daily	83,741	80,269	84,103	87,073	85,294
Man-hours worked	171,316,256	176,220,617	189,547,732	187,602,968	187,093,067
Man-days worked	21,407,270	22,034,189	23,642,139	23,358,546	23,286,550
Average number of days worked	256	275	281	268	273
Average hours per man-year	2,046	2,195	2,254	2,155	2,194
Average hours per man-day	8.00	8.00	8.02	8.03	8.03
Number of active mines	3,193	3,120	3,303	3,244	3,366

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TABLE 30. - Total injuries in the metal, nonmetal, and quarry industries, 1931-54

Year	All minerals	Metals	Quarries	Nonmetals
1931	14,355	8,015	5,488	852
1932	8,727	4,586	3,606	535
1933	9,716	5,267	3,696	753
1934	11,992	7,213	3,984	795
1935	14,573	9,550	4,203	820
1936	20,657	13,801	5,808	1,048
1937	24,699	17,274	6,425	1,000
1938	17,987	12,146	5,109	732
1939	19,135	13,154	5,252	729
1940	20,249	14,149	5,260	840
1941	22,948	14,803	6,946	1,199
1942	20,655	12,635	6,461	1,559
1943	18,503	11,728	5,279	1,496
1944	14,834	9,024	4,510	1,300
1945	12,353	7,018	4,174	1,161
1946	14,022	7,435	5,192	1,395
1947	15,318	8,419	5,579	1,320
1948	13,995	7,735	5,069	1,191
1949	13,036	7,009	4,892	1,135
1950	12,768	6,695	4,816	1,257
1951	13,289	6,919	5,002	1,368
1952	12,563	6,801	4,577	1,185
1953	12,190	6,256	4,493	1,441
1954	9,913	5,080	3,868	965
1931-54 total	368,477	222,712	119,689	26,076
1931-54 average	15,353	9,279.67	4,987.04	1,086.50
Base	15,353	9,279.7	4,987.0	1,086.5

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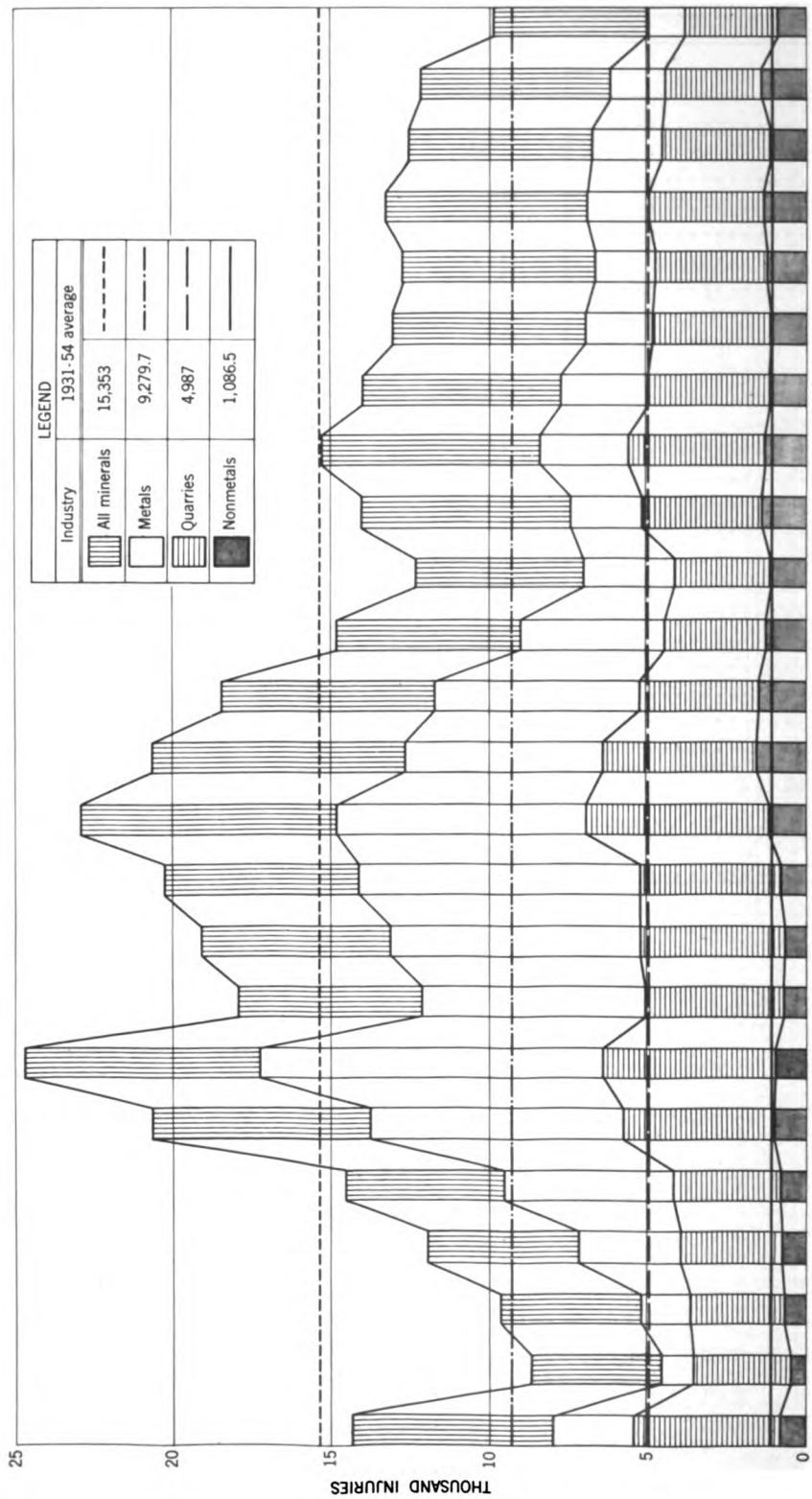

Figure 1. - Injuries in all mineral industries and in metal, quarry, and nonmetal industries, 1931-54.

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TABLE 31. - Injury experience and salient statistics: Copper mines, 1943-53

	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
Number of injuries:											
Fatal	70	38	23	23	32	31	13	17	19	26	25
Nonfatal	3,506	2,552	1,531	1,457	1,655	1,572	1,190	1,176	1,304	1,165	1,212
Total	3,576	2,590	1,554	1,480	1,687	1,603	1,203	1,193	1,323	1,191	1,237
Frequency rates per million man-hours											
Fatal	1.15	0.80	0.65	0.80	0.84	0.78	0.37	0.46	0.48	0.70	0.63
Nonfatal	57.77	53.73	43.16	50.90	43.25	39.61	34.26	31.49	32.87	31.25	30.69
Total	58.92	54.53	43.81	51.70	44.09	40.39	34.64	31.95	33.34	31.95	31.32
Average number of men working daily	23,700	18,826	14,542	12,969	15,654	16,280	16,027	15,383	16,274	14,910	15,894
Man-hours worked	60,689,305	47,495,695	35,474,475	28,622,003	38,263,818	39,684,197	34,729,944	37,345,430	39,676,673	37,279,930	39,488,069
Man-days worked	7,585,533	5,936,435	4,434,654	3,578,349	4,782,153	4,959,483	4,341,202	4,688,299	4,959,135	4,661,726	4,941,301
Average number of days worked	320	315	305	276	305	305	271	305	305	313	311
Average hours per man-year	2,561	2,523	2,439	2,207	2,444	2,438	2,167	2,428	2,438	2,500	2,484
Average hours per man-day	8.00	8.00	8.00	8.00	8.00	8.00	8.00	7.97	8.00	8.00	7.99
Number of active mines	175	221	157	139	167	122	140	151	171	146	182

TABLE 32. - Injury experience and salient statistics: Gold-silver lode mines, 1943-53

	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
Number of injuries:											
Fatal	9	5	4	8	14	13	9	10	15	12	6
Nonfatal	642	388	533	1,000	1,192	986	1,190	1,270	963	763	680
Total	651	393	537	1,008	1,206	999	1,199	1,280	978	775	686
Frequency rates per million man-hours:											
Fatal	1.14	0.93	0.48	0.78	1.27	1.15	0.84	0.97	1.81	1.62	0.92
Nonfatal	81.48	72.03	63.39	98.01	107.74	87.04	111.72	122.96	116.10	103.10	104.14
Total	82.63	72.95	63.87	98.79	109.01	88.19	112.57	123.93	117.91	104.72	105.06
Average number of men working daily	3,854	2,716	3,816	5,152	5,537	5,276	5,309	5,112	4,261	3,645	3,214
Man-hours worked	7,878,766	5,386,971	8,407,743	10,203,525	11,063,328	11,328,421	10,651,525	10,328,735	8,294,331	7,400,300	6,529,816
Man-days worked	994,783	675,688	1,104,543	1,305,504	1,414,106	1,442,554	1,369,960	1,333,387	1,070,753	931,214	817,573
Average number of days worked	258	249	289	253	255	273	258	261	251	255	254
Average hours per man-year	2,044	1,983	2,203	1,980	1,998	2,147	2,006	2,021	1,947	2,030	2,032
Average hours per man-day	7.92	7.97	7.61	7.82	7.82	785	7.78	7.75	7.75	7.95	7.99
Number of active mines	405	388	381	723	944	589	660	676	714	487	404

TABLE 33. - Injury experience and salient statistics: Iron mines, 1943-53

	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
Number of injuries:											
Fatal	48	39	36	25	36	34	21	23	33	28	19
Nonfatal	1,742	1,412	1,326	1,206	1,403	1,440	1,158	1,126	1,264	1,066	1,131
Total	1,790	1,451	1,362	1,231	1,439	1,474	1,179	1,149	1,297	1,094	1,150
Frequency rates per million man-hours:											
Fatal	0.69	0.67	0.67	0.55	0.62	0.54	0.38	0.39	0.49	0.44	0.28
Nonfatal	24.88	24.11	24.66	26.77	24.12	23.05	20.89	18.95	18.61	16.84	16.92
Total	25.56	24.78	25.32	27.33	24.74	23.60	21.27	19.34	19.09	17.28	17.20
Average number of men working daily	30,058	25,852	23,443	24,723	26,478	27,116	27,792	27,686	30,576	31,802	30,862
Man-hours worked	70,018,866	58,557,525	53,781,487	45,048,416	58,157,587	62,468,142	55,422,388	59,406,348	67,931,038	63,307,839	66,839,538
Man-days worked	8,724,063	7,299,664	6,696,157	5,603,762	7,238,851	7,786,361	6,907,048	7,407,111	8,446,483	7,879,534	8,335,343
Average number of days worked	290	282	286	227	273	287	249	268	276	248	270
Average hours per man-year	2,329	2,265	2,294	1,822	2,196	2,304	1,994	2,146	2,222	1,991	2,166
Average hours per man-day	8.03	8.02	8.03	8.04	8.03	8.02	8.02	8.02	8.04	8.02	8.02
Number of active mines	291	277	229	215	236	288	290	307	389	355	354

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TABLE 34. - Injury experience and salient statistics: Lead-zinc mines, 1943-53

	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
Number of injuries:											
Fatal	49	41	29	30	33	22	24	28	18	40	30
Nonfatal	4,216	3,786	2,976	2,916	3,221	3,050	2,810	2,411	2,497	2,837	2,135
Total	4,265	3,827	3,005	2,946	3,254	3,072	2,834	2,439	2,515	2,877	2,165
Frequency rates per million man-hours:											
Fatal	1.07	1.06	.85	.89	.93	.65	.76	.97	.57	1.10	1.12
Nonfatal	92.22	97.71	87.12	86.33	90.43	89.62	88.54	83.49	79.30	78.04	79.88
Total	93.29	98.77	87.96	87.22	91.36	90.26	89.29	84.46	79.87	79.14	81.00
Average number of men working daily	20,073	16,576	14,645	15,934	16,628	16,113	16,333	14,038	14,520	16,745	13,503
Man-hours worked	45,718,958	38,746,762	34,161,578	33,777,747	35,618,006	34,034,255	31,738,565	28,878,165	31,488,680	36,351,719	26,727,287
Man-days worked	5,752,859	4,865,222	4,273,405	4,228,143	4,457,549	4,255,190	3,971,971	3,612,051	3,937,874	4,548,345	3,341,999
Average number of days worked	287	294	292	265	268	264	243	257	271	272	248
Average hours per man-year	2,278	2,338	2,333	2,120	2,142	2,112	1,943	2,057	2,169	2,171	1,979
Average hours per man-day	7.95	7.96	7.99	7.99	7.99	8.00	7.99	7.99	8.00	7.99	8.00
Number of active mines	846	768	650	647	750	760	783	667	867	803	551

TABLE 35. - Injury experience and salient statistics: Miscellaneous metal mines, 1943-53

	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
Number of injuries:											
Fatal	19	7	4	3	8	3	2	6	7	10	11
Nonfatal	1,361	708	492	546	592	403	405	444	598	702	818
Total	1,380	715	496	549	600	406	407	450	605	712	829
Frequency rates per million man-hours:											
Fatal	0.95	0.65	0.59	0.48	1.18	0.46	0.35	1.04	0.93	0.99	0.87
Nonfatal	68.34	65.45	72.50	86.46	87.63	61.26	70.58	76.97	79.20	69.45	64.81
Total	69.29	66.10	73.09	86.93	88.82	61.72	70.92	78.01	80.12	70.44	65.68
Average number of men working daily	8,797	5,156	3,029	2,998	3,011	2,879	2,680	2,616	3,323	5,088	6,468
Man-hours worked	19,916,349	10,816,716	6,786,457	6,315,410	6,755,376	6,578,055	5,738,514	5,768,379	7,550,962	10,108,156	12,622,249
Man-days worked	2,481,092	1,333,292	845,950	789,562	843,616	813,035	716,405	727,325	941,591	1,224,861	1,573,139
Average number of days worked	282	259	279	263	280	282	267	278	283	241	243
Average hours per man-year	2,264	2,098	2,240	2,107	2,244	2,285	2,141	2,205	2,272	1,987	1,951
Average hours per man-day	8.03	8.11	8.02	8.00	8.01	8.09	8.01	7.93	8.02	8.25	8.02
Number of active mines	820	528	216	199	131	123	122	124	167	542	861

TABLE 36. - Injury experience and salient statistics: Nonmetal mines, 1943-53

	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
Number of injuries:											
Fatal	25	17	16	26	12	15	10	19	17	14	22
Nonfatal	1,471	1,283	1,145	1,369	1,308	1,176	1,125	1,238	1,351	1,171	1,419
Total	1,496	1,300	1,161	1,395	1,320	1,191	1,135	1,257	1,368	1,185	1,441
Frequency rates per million man-hours:											
Fatal	0.89	0.66	0.65	0.97	0.42	0.54	0.37	0.67	0.56	0.48	0.72
Nonfatal	52.54	49.81	46.52	50.94	45.40	42.33	41.75	43.51	44.84	40.44	46.54
Total	53.43	50.47	47.17	51.90	45.82	42.87	42.12	44.17	45.40	40.92	47.26
Average number of men working daily	12,713	11,261	10,371	11,312	12,176	11,950	12,077	11,977	12,500	12,447	12,765
Man-hours worked	27,998,690	25,760,287	24,612,921	26,876,871	28,809,150	27,784,119	26,948,124	28,455,936	30,130,424	28,954,402	30,488,130
Man-days worked	3,425,826	3,171,150	3,015,980	3,296,626	3,554,901	3,432,304	3,340,482	3,512,094	3,728,821	3,588,289	3,727,298
Average number of days worked	269	282	291	291	292	287	277	293	298	288	292
Average hours per man-year	2,202	2,288	2,373	2,376	2,366	2,325	2,231	2,376	2,410	2,326	2,388
Average hours per man-day	8.17	8.12	8.16	8.15	8.10	8.09	8.07	8.10	8.08	8.07	8.18
Number of active mines	922	775	643	611	635	563	546	521	446	494	626

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TABLE 37. - All mines: Number of fatalities and frequency rates per million man-hours of employment in the metal and nonmetal industries of the United States and Alaska, by agency and location, 1943-53

Agency and location	1943		1944		1945		1946		1947		1948		1949		1950		1951		1952		1953	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Underground:																						
Fall of rock or ore from roof or wall	76	0.545	49	0.450	49	0.547	26	0.307	39	0.398	40	0.406	22	0.250	41	0.474	28	0.307	36	0.388	30	0.337
Handling rock or ore	-	-	3	.028	-	-	1	.012	2	.020	3	.030	-	-	2	.023	1	.011	1	.011	1	.011
Handtools	2	.014	-	-	-	-	-	-	-	-	-	-	1	.011	-	-	1	.011	-	-	1	.011
Explosives	9	.065	12	.110	10	.112	11	.130	6	.061	7	.071	9	.102	3	.035	5	.055	4	.043	13	.146
Haulage	28	.201	18	.165	12	.134	14	.165	20	.204	9	.091	8	.091	7	.081	13	.143	17	.183	8	.090
Falling down chute, winze, raise, or stope	9	.065	9	.083	4	.045	5	.059	8	.082	10	.102	8	.091	8	.092	9	.099	13	.140	9	.101
Other falls of persons	1	.007	1	.009	3	.033	-	-	1	.010	-	-	4	.045	2	.023	2	.022	1	.011	-	-
Run of ore from raise, chute, or pocket	2	.014	4	.037	-	-	4	.047	4	.041	2	.020	1	.011	1	.012	3	.033	2	.022	2	.022
Drilling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.011
Electricity	3	.022	3	.028	2	.022	2	.024	1	.010	3	.030	1	.011	-	-	1	.011	1	.011	2	.022
Machinery	2	.014	2	.018	2	.022	2	.024	5	.051	6	.061	1	.011	3	.035	1	.011	5	.054	2	.022
Mine fires	-	-	-	-	-	-	-	-	-	-	1	.010	-	-	5	.058	-	-	-	-	8	.090
Suffocation from natural gases	2	.014	1	.009	-	-	3	.035	3	.031	-	-	1	.011	2	.023	-	-	3	.032	2	.022
Inrush of water	7	.050	1	.009	-	-	-	-	1	.010	-	-	-	-	1	.012	-	-	-	-	-	-
Stepping on nail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Handling materials	-	-	-	-	1	.011	-	-	1	.010	5	.051	-	-	-	-	-	-	1	.011	2	.022
Other causes	15	.108	5	.046	2	.022	3	.035	7	.072	-	-	4	.045	2	.023	2	.022	4	.043	3	.034
Total	156	1.118	108	.992	85	.949	71	.838	98	1.001	86	.873	60	.688	77	.889	66	.724	88	.948	84	.944
Shaft:																						
Falling down shaft	8	.057	4	.037	3	.033	7	.083	10	.102	1	.010	2	.023	3	.035	12	.132	8	.086	5	.056
Objects falling down shaft	4	.029	2	.018	-	-	2	.024	3	.031	3	.030	3	.034	1	.012	2	.022	2	.022	1	.011
Breaking of cables	-	-	-	-	1	.011	3	.035	-	-	-	-	-	-	-	-	-	-	3	.032	-	-
Overwinding	-	-	1	.009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cage, skip, or bucket	5	.036	4	.037	2	.022	6	.071	2	.020	4	.041	5	.057	4	.046	2	.022	4	.043	2	.022
Other causes	5	.036	4	.037	3	.033	1	.012	2	.020	-	-	-	-	-	-	2	.022	6	.065	1	.011
Total	22	.158	15	.138	9	.100	19	.224	17	.174	8	.081	10	.114	8	.093	18	.197	23	.248	9	.101
Surface:																						
Mine cars, mine locomotives, or aerial trams	-	-	-	-	-	-	2	.054	1	.024	-	-	1	.025	-	-	-	-	-	-	1	.025
Railway cars and locomotives	5	.114	-	-	-	-	-	-	1	.024	-	-	-	-	-	-	-	-	-	-	-	-
Run or fall of ore in or from bins.	-	-	1	.026	-	-	1	.027	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Falls of persons	1	.023	1	.026	4	.108	1	.027	2	.048	-	-	-	-	-	-	2	.046	-	-	1	.025
Stepping on nail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Handtools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electricity	1	.023	-	-	1	.027	1	.027	1	.024	2	.046	-	-	1	.024	2	.046	1	.024	1	.025
Machinery	2	.046	1	.026	-	-	1	.027	2	.048	2	.046	1	.025	1	.024	2	.046	-	-	1	.025
Handling materials and equipment	1	.023	1	.026	-	-	-	-	1	.024	-	-	1	.025	-	-	-	-	1	.024	1	.025
Other causes	1	.023	-	-	2	.054	5	.135	5	.119	1	.023	-	-	-	-	4	.092	2	.049	-	-
Total	11	.251	4	.105	7	.190	11	.298	13	.309	5	.114	3	.074	2	.048	10	.230	4	.097	5	.125
Opencut:																						
Falls or slides of rock or ore	6	.118	3	.072	1	.025	6	.168	3	.065	4	.085	-	-	2	.041	4	.073	4	.074	3	.052
Explosives	3	.059	1	.024	-	-	2	.056	1	.022	-	-	-	-	-	-	-	-	1	.019	2	.034
Haulage	5	.098	9	.215	6	.152	2	.056	3	.065	6	.128	3	.070	4	.083	5	.091	3	.056	5	.086
Power shovels	3	.059	-	-	-	-	-	-	-	-	1	.021	-	-	-	-	-	-	3	.056	1	.017
Falls of persons	3	.059	2	.048	2	.051	3	.084	2	.044	1	.021	-	-	-	-	-	-	-	-	1	.017
Falls of derricks, booms, etc.	-	-	1	.024	1	.025	-	-	-	-	-	-	-	-	1	.021	-	-	-	-	-	-
Run or fall of ore in or from bins.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Machinery	3	.059	1	.024	-	-	-	-	1	.022	2	.043	1	.023	2	.041	5	.091	1	.019	2	.034
Electricity	5	.098	1	.024	1	.025	-	-	-	-	5	.106	-	-	3	.062	1	.018	1	.019	2	.034
Handtools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Handling materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other causes	3	.059	2	.048	-	-	2	.056	-	-	1	.021	2	.047	4	.083	3	.055	3	.056	-	-
Total	31	.609	20	.477	11	.279	15	.421	10	.213	20	.426	6	.141	16	.331	18	.328	16	.298	16	.275
Grand total	220	.939	147	.779	112	.675	116	.738	138	.743	119	.629	79	.461	103	.584	112	.591	131	.698	114	.609

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TABLE 38. - All mines: Number of nonfatal injuries and frequency rates per million man-hours of employment in the metal and nonmetal industries of the United States and Alaska, by agency and location, 1943-53

Agency and location	1943		1944		1945		1946		1947		1948		1949		1950		1951		1952		1953	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Underground:																						
Fall of rock or ore from roof or wall	2,114	15.154	1,599	14.688	1,081	12.069	1,143	13.495	1,395	14.249	1,224	12.430	960	10.908	1,011	11.679	1,060	11.623	960	10.339	921	10.353
Handling rock or ore	1,070	7.670	835	7.670	682	7.614	648	7.650	660	6.741	563	5.718	461	5.238	460	5.314	481	5.274	391	4.211	429	4.822
Handtools	778	5.577	604	5.548	475	5.303	481	5.679	522	5.332	419	4.255	415	4.715	379	4.378	381	4.178	367	3.953	345	3.878
Explosives	86	.616	53	.487	46	.514	58	.685	64	.654	59	.599	63	.716	41	.474	39	.428	67	.722	67	.753
Haulage	1,293	9.269	1,038	9.535	863	9.635	862	10.177	982	10.031	859	8.724	710	8.067	677	7.821	645	7.072	681	7.334	625	7.025
Falling down chute, winze, raise, or stope	274	1.964	202	1.856	143	1.597	148	1.747	183	1.869	143	1.452	182	2.068	146	1.687	184	2.018	172	1.852	152	1.709
Other falls of persons	544	3.900	439	4.033	321	3.584	307	3.625	445	4.545	397	4.032	340	3.863	417	4.817	404	4.430	361	3.888	334	3.754
Run of ore from raise, chute, or pocket	363	2.602	191	1.754	184	2.054	217	2.562	249	2.543	208	2.112	218	2.477	198	2.287	207	2.270	208	2.240	279	3.136
Drilling	832	5.964	633	5.815	628	7.012	680	8.028	714	7.293	748	7.596	638	7.249	591	6.827	618	6.776	672	7.237	502	5.643
Electricity	41	.294	29	.266	21	.234	23	.272	18	.184	37	.376	32	.364	30	.347	35	.384	35	.377	38	.427
Machinery	493	3.534	398	3.656	339	3.785	369	4.357	381	3.892	335	3.402	299	3.397	302	3.489	289	3.169	283	3.048	310	3.485
Mine fires	13	.093	4	.037	2	.022	6	.071	10	.102	7	.071	4	.045	2	.023	1	.011	2	.022	1	.011
Suffocation from natural gases	16	.115	10	.092	8	.089	6	.071	7	.072	13	.132	7	.080	13	.150	5	.055	3	.032	14	.157
Inrush of water	-	-	3	.028	3	.033	-	-	1	.010	5	.051	-	-	2	.023	-	-	-	-	-	-
Stepping on nail	119	.853	76	.698	44	.491	40	.472	85	.868	86	.873	107	1.216	90	1.040	78	.855	80	.862	61	.686
Handling materials	1,161	8.322	937	8.607	721	8.050	755	8.914	841	8.590	881	8.947	779	8.851	782	9.034	823	9.024	775	8.347	762	8.565
Other causes	1,116	8.000	960	8.818	670	7.480	822	9.705	731	7.467	728	7.393	843	9.579	786	9.080	618	6.776	747	8.045	636	7.149
Total	10,313	73.907	8,611	73.597	6,831	69.598	6,519	77.508	7,288	74.442	6,711	68.184	6,097	69.234	5,967	68.948	6,052	64.343	5,963	64.259	5,476	61.574
Shaft:																						
Falling down shaft	25	.179	5	.046	3	.033	10	.118	8	.082	10	.102	6	.068	10	.116	5	.055	6	.065	12	.135
Objects falling down shaft	51	.366	45	.413	24	.268	30	.354	40	.409	17	.173	31	.352	23	.266	16	.175	27	.291	18	.202
Breaking of cables	1	.007	-	-	1	.011	4	.047	-	-	5	.051	1	.011	1	.012	1	.011	-	-	-	-
Overwinding	3	.022	-	-	1	.011	1	.012	2	.020	-	-	-	-	1	.012	1	.011	1	.011	-	-
Cage, skip or bucket	57	.409	71	.652	38	.424	54	.638	48	.490	66	.670	37	.420	32	.370	46	.504	57	.614	38	.427
Other causes	55	.394	55	.505	65	.726	56	.661	70	.715	46	.466	50	.568	52	.601	50	.548	41	.442	18	.202
Total	192	1.376	176	1.617	132	1.474	155	1.830	168	1.716	139	1.401	125	1.419	118	1.367	119	1.304	132	1.422	86	.967
Surface:																						
Mine cars, mine locomotives, or aerial trams	63	1.437	30	.790	32	.867	56	1.515	49	1.166	31	.707	23	.566	28	.677	26	.598	32	.780	17	.426
Railway cars and locomotives	27	.616	24	.632	19	.515	9	.243	32	.762	18	.410	6	.148	8	.193	17	.391	7	.171	11	.275
Run or fall of ore in or from bins.	26	.593	12	.316	14	.379	11	.298	8	.190	17	.388	8	.197	11	.266	10	.230	17	.414	7	.175
Falls of persons	177	4.039	129	3.395	115	3.115	144	3.895	163	3.880	161	3.671	176	4.333	157	3.797	185	4.253	160	3.898	149	3.730
Stepping on nail	21	.479	16	.421	14	.379	19	.514	6	.143	13	.296	11	.271	7	.169	19	.437	22	.536	16	.401
Handtools	137	3.126	101	2.658	98	2.654	134	3.625	138	3.285	90	2.052	114	2.807	114	2.757	125	2.874	92	2.241	140	3.505
Electricity	9	.205	10	.263	11	.298	13	.352	37	.881	19	.433	27	.665	4	.097	16	.368	8	.195	12	.300
Machinery	140	3.194	111	2.921	111	3.007	137	3.706	148	3.523	113	2.577	159	3.915	161	3.893	146	3.357	134	3.265	120	3.004
Handling materials and equipment	377	8.602	264	6.948	237	6.419	304	8.223	329	7.831	302	6.886	306	7.534	281	6.795	276	6.345	251	6.115	252	6.308
Other causes	276	6.297	216	5.685	199	5.390	270	7.303	266	6.332	235	5.358	259	6.378	250	6.046	405	9.311	303	7.382	377	9.438
Total	1,253	28.589	913	24.028	850	23.023	1,097	29.673	1,176	27.992	999	22.778	1,069	26.373	1,021	24.791	1,225	28.164	1,026	24.996	1,121	28.063
Opencut:																						
Falls or slides of rock or ore	117	2.298	98	2.337	44	1.116	49	1.376	62	1.350	40	.852	45	1.054	31	.642	47	.857	49	.912	55	.945
Explosives	25	.491	9	.215	5	.127	6	.168	8	.174	12	.255	10	.234	6	.124	15	.273	6	.112	7	.120
Haulage	160	3.143	116	2.767	73	1.852	98	2.752	84	1.829	83	1.767	60	1.405	72	1.491	92	1.677	75	1.396	92	1.581
Power shovels	47	.923	30	.716	30	.761	27	.758	37	.806	28	.596	23	.539	45	.932	45	.820	33	.614	56	.962
Falls of persons	167	3.280	146	3.482	115	2.917	127	3.566	120	2.613	145	3.087	126	2.951	108	2.236	135	2.461	128	2.382	129	2.217
Falls of derricks, booms, etc.	13	.255	10	.239	8	.203	1	.028	1	.022	7	.149	6	.141	4	.083	7	.128	12	.223	4	.069
Run or fall of ore in or from bins.	10	.196	5	.119	10	.254	6	.168	6	.131	9	.192	4	.094	15	.311	6	.109	5	.093	11	.189
Machinery	100	1.964	121	2.886	120	3.044	126	3.538	124	2.700	147	3.129	131	3.069	129	2.671	140	2.552	136	2.532	127	2.183
Electricity	7	.137	11	.262	10	.254	11	.309	13	.283	11	.234	11	.258	8	.166	8	.146	11	.205	11	.189
Handtools	101	1.984	125	2.981	82	2.080	72	2.022	106	2.308	100	2.129	83	1.944	89	1.843	119	2.169	93	1.732	80	1.375
Handling materials	252	4.950	197	4.699	183	4.642	207	5.812	207	4.508	221	4.705	182	4.263	130	2.691	181	3.300	152	2.830	134	2.303
Other causes	247	4.851	209	4.986	174	4.414	167	4.699	201	4.377	155	3.300	142	3.326	145	3.002	168	3.063	123	2.294	208	3.575
Total	1,246	24.576	1,077	25.794	894	21.653	894	25.147	959	21.102	958	20.371	815	19.028	787	16.196	963	17.756	823	15.630	914	15.759
Grand total	13,004	25.512	10,177	53.567	8,907	48.623	8,714	52.493	9,601	51.762	8,807	46.534	8,006	47.077	7,793	44.941	8,179	44.159	7,844	41.870	7,507	40.705

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TABLE 39. - Total employment in the metal, nonmetal, and quarry industries, 1931-54

Year	All minerals	Metals	Quarries	Nonmetals
1931	150,140	71,991	69,200	8,949
1932	110,154	46,602	56,866	6,686
1933	118,943	49,338	61,927	7,678
1934	130,976	58,411	64,331	8,234
1935	165,319	83,975	73,005	8,339
1936	180,954	90,552	80,022	10,380
1937	202,523	108,412	84,094	10,017
1938	180,524	93,501	77,497	9,526
1939	191,358	102,279	79,449	9,630
1940	199,629	110,340	79,509	9,780
1941	211,413	114,202	86,123	11,088
1942	196,716	99,769	84,270	12,677
1943	170,480	87,880	69,887	12,713
1944	140,150	70,413	58,476	11,261
1945	129,845	61,294	58,180	10,371
1946	146,811	65,234	70,265	11,312
1947	158,649	71,228	75,245	12,176
1948	160,730	71,436	77,344	11,950
1949	165,950	71,664	82,209	12,077
1950	165,999	68,292	85,730	11,977
1951	168,905	71,603	84,802	12,500
1952	168,952	74,626	81,879	12,447
1953	168,935	72,529	83,641	12,765
1954	158,330	66,610	78,910	12,810
1931-54 total	3,942,385	1,882,181	1,802,861	257,343
1931-54 average	164,266.04	78,424.21	75,119.21	10,722.63
Base	164,266.0	78,424.2	75,119.2	10,722.6

TABLE 40. - Employment data and injury experience: Metallurgical plants, 1943-53[1/]

Year	Men working daily	Average active plant days	Man-days worked	Man-hours worked	Number of injuries		Injury rates per million man-hours	
					Fatal	Nonfatal	Fatal	Nonfatal
1943	64,735	336	21,754,945	173,633,052	31	4,666	0.18	26.87
1944	58,085	329	19,113,078	152,325,815	38	4,158	.25	27.30
1945	46,467	329	15,268,198	121,490,701	19	3,271	.16	26.92
1946	44,954	284	12,782,510	101,672,762	20	2,794	.20	27.48
1947	49,082	313	15,352,540	122,630,301	21	3,228	.17	26.32
1948	47,768	317	15,121,048	121,027,705	14	2,749	.12	22.71
1949	47,663	294	14,030,518	112,094,761	23	2,567	.21	22.90
1950	46,277	314	14,539,237	116,430,150	29	2,574	.25	22.11
1951	48,019	318	15,246,863	122,087,623	16	2,714	.13	22.23
1952	49,032	319	15,627,930	124,967,260	16	2,853	.13	22.83
1953	55,283	318	17,602,507	138,811,014	12	2,824	.09	20.34

1/ Includes smelters, nonferrous reduction and refinery plants, and ore-dressing plants.

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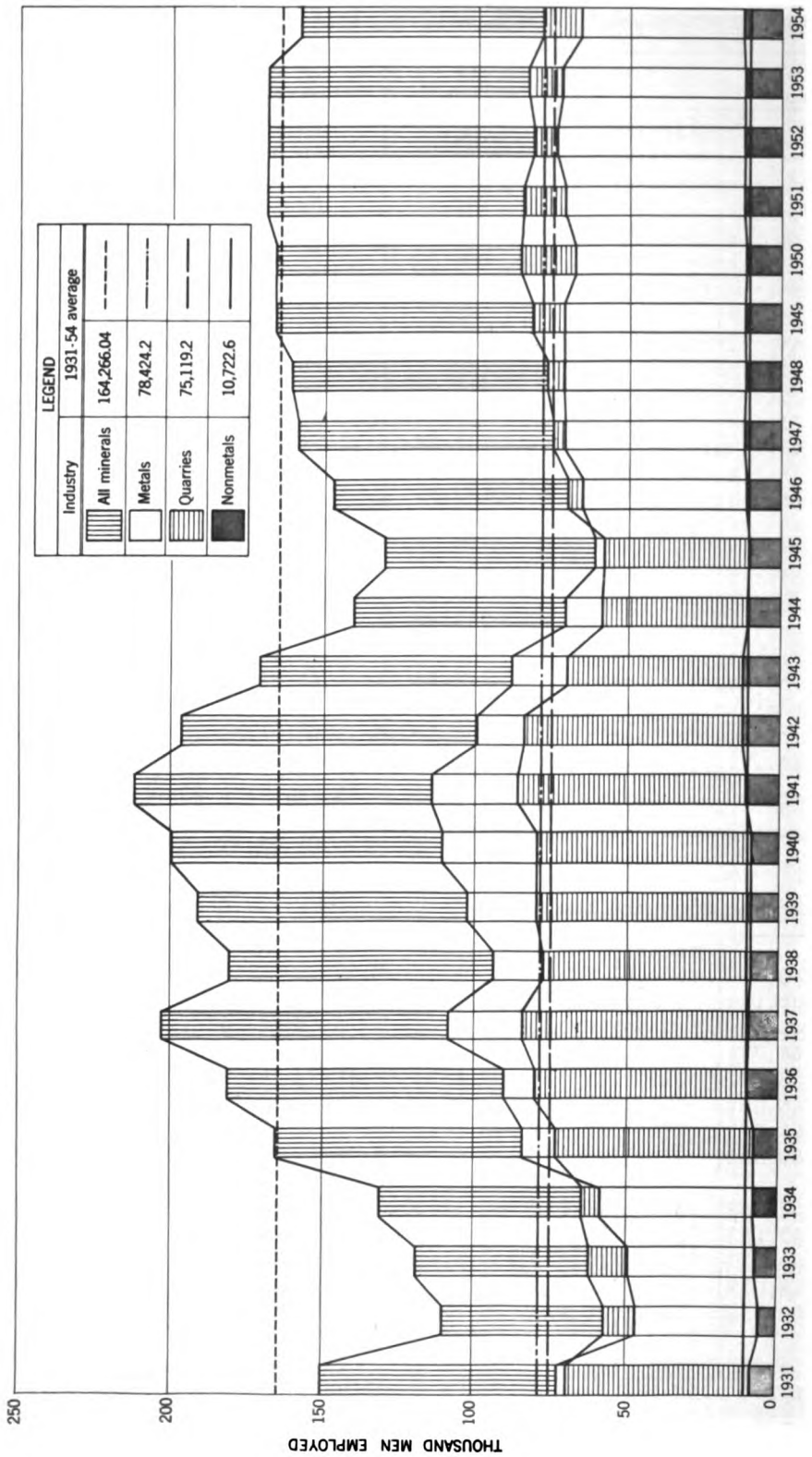

Figure 2. - Employment in all mineral industries and in metal, quarry, and nonmetal industries, 1931-54.

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TABLE 41. - Employment data and injury experience: Clay mines in the United States, 1943-53

Year	Location	Number of active mines	Men employed	Man-days worked	Man-hours worked	Injuries		Frequency rate	
						Fatal	Nonfatal	Fatal	Nonfatal
1943	Underground	157	2,456	600,179	4,729,810	-	273	-	57.72
	Opencut	411	2,992	685,147	5,685,185	4	216	0.70	37.99
	Total ...	568	5,448	1,285,326	10,414,995	4	489	.38	46.95
1944	Underground	146	2,885	444,487	3,487,745	4	213	1.15	61.07
	Opencut	349	2,540	572,343	4,718,231	3	176	.64	37.30
	Total ...	495	5,425	1,016,830	8,205,976	7	389	.85	47.40
1945	Underground	140	1,671	405,871	3,227,858	5	183	1.55	56.69
	Opencut	322	2,439	566,286	4,776,296	1	199	.21	41.66
	Total ...	462	4,110	972,157	8,004,154	6	382	.75	47.73
1946	Underground	155	1,930	451,760	3,558,361	3	196	.84	55.08
	Opencut	356	2,755	670,853	5,488,763	1	295	.18	53.75
	Total ...	511	4,685	1,122,613	9,047,124	4	491	.44	54.27
1947	Underground	139	2,076	507,247	3,998,906	1	236	.25	59.02
	Opencut	381	2,957	685,178	5,627,414	2	213	.36	37.85
	Total ...	520	5,033	1,192,425	9,626,320	3	449	.31	46.64
1948	Underground	126	1,854	456,154	3,619,225	5	219	1.38	60.51
	Opencut	389	3,044	712,777	5,845,858	2	233	.34	39.86
	Total ...	515	4,898	1,168,931	9,465,083	7	452	.74	47.75
1949	Underground	123	1,702	357,970	2,877,316	2	177	.70	61.52
	Opencut	380	2,700	567,421	4,656,768	2	148	.43	31.78
	Total ...	503	4,402	925,391	7,534,084	4	325	.53	43.14
1950	Underground	256	2,552	587,600	4,657,202	4	223	.86	47.88
	Opencut	255	1,962	426,336	3,502,667	2	98	.57	27.98
	Total ...	511	4,514	1,013,936	8,159,869	6	321	.74	39.34
1951	Underground	208	2,209	559,787	4,462,166	1	242	.22	54.23
	Opencut	278	2,094	468,920	3,838,971	1	121	.26	31.52
	Total ...	486	4,303	1,028,707	8,301,137	2	363	.24	43.73
1952	Underground	285	2,702	611,980	4,791,790	2	215	.42	44.87
	Opencut	326	2,248	490,342	4,079,661	3	98	.74	24.02
	Total ...	611	4,950	1,102,322	8,871,451	5	313	.56	35.28
1953	Underground	311	2,651	588,366	4,708,941	-	266	-	56.49
	Opencut	440	2,754	573,168	4,692,577	1	137	.21	29.20
	Total ...	751	5,405	1,161,534	9,401,518	1	403	.11	42.87

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TABLE 42. - Injury experience and salient statistics: Gold placer mines, 1943-53

	1943	1944	1945	1946	1947	1948
Number of injuries:						
Fatal	-	-	-	1	3	1
Nonfatal	66	48	64	220	230	180
Total	66	48	64	221	233	181
Frequency rates per million man-hours:						
Fatal	-	-	-	0.16	0.42	0.13
Nonfatal	32.67	23.73	23.85	34.17	32.09	24.25
Total	32.67	23.73	23.85	34.32	32.51	24.38
Average number of men working daily	1,398	1,287	1,819	3,458	3,920	3,772
Man-hours worked	2,019,959	2,022,888	2,683,598	6,438,965	7,166,257	7,423,065
Man-days worked	251,892	238,321	318,102	732,683	830,710	867,709
Average number of days worked	180	185	175	212	212	230
Average hours per man-year	1,445	1,572	1,475	1,862	1,828	1,968
Average hours per man-day	8.02	8.49	8.44	8.79	8.63	8.55
Number of active mines.	500	400	449	635	872	724

	1949	1950	1951	1952	1953
Number of injuries:					
Fatal	-	-	3	1	1
Nonfatal	187	184	198	151	188
Total	187	184	201	152	189
Frequency rates per million man-hours:					
Fatal	-	-	0.67	0.24	0.23
Nonfatal	30.72	30.48	44.24	35.95	42.75
Total	30.72	30.48	44.91	36.19	42.97
Average number of men working daily	3,523	3,457	2,649	2,436	2,588
Man-hours worked	6,087,196	6,037,624	4,475,624	4,200,622	4,397,978
Man-days worked	760,202	753,922	557,482	524,577	549,897
Average number of days worked	216	218	210	215	212
Average hours per man-year	1,728	1,747	1,690	1,724	1,699
Average hours per man-day	8,01	8.01	8.03	8.01	8.00
Number of active mines.	652	674	549	417	388

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Year	Number of injuries		Frequency rates		Average men working daily	Average number of days worked	Man-hours worked	Man-days worked	Number of operations
	Fatal	Nonfatal	Fatal	Nonfatal					
ALABAMA									
1943	11	373	0.74	25.21	6,627	276	14,793,485	1,828,859	62
1944	7	244	.62	21.52	4,761	295	11,340,050	1,406,199	50
1945	9	214	.89	21.24	4,220	296	10,074,538	1,247,769	34
1946	7	232	.71	23.41	4,722	261	9,909,279	1,234,103	26
1947	12	290	1.00	24.17	5,419	275	11,999,878	1,489,422	30
1948	7	289	.55	22.69	5,609	282	12,737,769	1,582,824	53
1949	2	145	.19	14.13	5,338	239	10,259,750	1,275,929	41
1950	3	109	.32	11.65	4,947	234	9,353,026	1,157,539	42
1951	2	123	.21	12.68	5,098	234	9,698,449	1,192,247	65
1952	3	99	.37	12.18	4,900	205	8,125,809	1,003,814	48
1953	3	104	.40	13.99	3,748	245	7,435,107	917,442	37
ALASKA									
1943	3	73	1.81	44.04	1,057	196	1,657,606	207,201	205
1944	1	13	.69	8.92	1,053	159	1,457,716	167,027	271
1945	-	2	-	1.17	1,124	174	1,705,452	195,024	305
1946	1	56	.27	15.19	2,048	189	3,685,690	386,329	399
1947	2	69	.51	17.55	2,140	199	3,932,098	425,528	380
1948	-	59	-	14.52	2,199	203	4,062,758	447,484	373
1949	-	69	-	21.14	2,047	199	3,263,780	407,973	313
1950	-	75	-	23.89	1,939	202	3,138,857	392,355	310
1951	1	77	.48	36.59	1,431	184	2,104,632	263,079	279
1952	1	71	.42	30.17	1,533	192	2,353,624	294,213	279
1953	2	64	.79	25.39	1,714	184	2,521,120	315,140	211
ARIZONA									
1943	12	1,655	0.51	70.66	9,134	321	23,423,033	2,930,998	257
1944	9	1,155	.53	67.67	6,865	311	17,068,024	2,134,405	234
1945	6	688	.54	52.64	5,405	302	13,071,140	1,634,492	170
1946	8	877	.67	73.39	5,442	275	11,950,611	1,494,742	197
1947	7	968	.43	59.64	6,703	303	16,231,194	2,030,341	280
1948	11	1,028	.64	59.90	6,938	309	17,160,792	2,145,828	178
1949	5	772	.32	49.54	6,739	289	15,582,810	1,949,437	231
1950	3	620	.21	43.54	5,915	301	14,238,409	1,780,711	230
1951	3	688	.20	45.51	6,400	295	15,118,440	1,889,893	244
1952	9	842	.59	54.96	6,574	292	15,319,113	1,917,484	230
1953	10	627	.63	39.32	6,758	295	15,946,326	1,993,328	374
ARKANSAS									
1943	4	252	0.82	51.89	2,116	286	4,856,441	605,467	115
1944	3	152	.98	49.55	1,399	270	3,067,302	377,138	101
1945	-	84	-	53.23	707	274	1,577,942	194,011	38
1946	1	61	.68	41.25	805	226	1,478,955	181,764	26
1947	1	60	.70	42.21	680	261	1,421,570	177,695	25
1948	-	48	-	30.66	741	264	1,565,559	195,695	23
1949	-	85	-	58.00	725	253	1,465,580	183,767	24
1950	2	54	1.26	33.99	737	269	1,588,549	198,328	18
1951	1	28	.61	17.13	771	264	1,634,784	203,287	16
1952	1	108	.69	74.12	706	258	1,457,063	182,199	14
1953	-	116	-	72.11	792	255	1,608,755	201,582	19
CALIFORNIA									
1943	3	710	0.35	83.22	4,054	262	8,531,955	1,060,154	596
1944	5	498	.73	73.19	3,231	261	6,804,392	843,138	494
1945	3	365	.53	64.40	2,752	254	5,667,691	699,292	305
1946	10	552	1.30	71.90	3,568	269	7,677,339	959,369	429
1947	4	657	.53	87.07	3,641	258	7,545,552	941,054	474
1948	9	418	1.30	60.17	3,178	273	6,946,622	866,449	417
1949	5	562	.54	61.25	4,135	277	9,175,588	1,144,786	415
1950	4	592	.44	65.56	4,034	280	9,030,390	1,127,758	441
1951	7	644	.69	63.10	4,460	285	10,206,570	1,271,192	461
1952	5	262	.76	39.89	3,690	221	6,568,438	816,052	536
1953	4	433	.57	62.19	3,816	225	6,962,144	860,484	480

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TABLE 43. - Injury experience and employment data: Metal and nonmetal mines in the United States and Alaska, by States, 1943-53 (con.)

Year	Number of injuries		Frequency rates		Average men working daily	Average number of days worked	Man-hours worked	Man-days worked	Number of operations
	Fatal	Nonfatal	Fatal	Nonfatal					
COLORADO									
1943	9	479	0.95	52.98	3,920	292	9,040,442	1,134,865	337
1944	5	399	.83	66.00	2,583	293	6,045,548	757,684	222
1945	3	342	.55	62.89	2,439	280	5,438,218	682,075	233
1946	4	383	.64	60.87	2,908	272	6,291,905	789,924	292
1947	8	475	1.20	71.11	3,143	267	6,680,206	838,392	335
1948	8	402	1.26	63.22	2,864	277	6,358,616	793,525	253
1949	3	454	.53	80.25	2,875	247	5,657,591	709,068	276
1950	5	428	.98	83.81	2,490	258	5,106,538	641,268	238
1951	9	489	1.37	74.20	3,016	274	6,590,307	825,246	255
1952	10	654	1.20	78.65	3,930	265	8,312,834	1,043,109	386
1953	8	516	1.03	66.18	3,849	253	7,796,750	972,706	384
FLORIDA									
1943	1	83	0.52	43.39	869	267	1,912,782	232,184	23
1944	2	64	1.03	32.88	855	278	1,946,224	237,919	19
1945	-	71	-	30.96	902	309	2,293,476	279,052	19
1946	2	106	.61	32.54	1,266	316	3,257,749	400,558	22
1947	1	117	.27	32.14	1,430	314	3,640,835	449,679	24
1948	2	85	.53	22.66	1,493	311	3,751,475	464,325	22
1949	-	110	-	34.23	1,444	273	3,213,297	393,908	21
1950	2	77	.50	19.36	1,543	311	3,977,056	480,214	21
1951	-	59	-	13.96	1,767	294	4,226,442	518,859	22
1952	3	91	.79	24.00	1,484	311	3,791,545	461,240	21
1953	1	43	.30	12.82	1,288	303	3,354,550	390,784	25
GEORGIA									
1943	-	24	-	23.63	475	238	1,015,838	113,270	47
1944	-	23	-	27.29	363	254	842,783	92,377	41
1945	-	23	-	35.37	270	270	650,206	72,920	31
1946	2	17	4.94	41.98	178	243	404,996	43,214	17
1947	-	25	-	57.58	163	277	434,172	45,211	17
1948	1	9	2.54	22.86	183	223	393,635	40,821	27
1949	-	11	-	30.34	171	222	362,567	37,914	23
1950	-	12	-	28.09	213	212	427,274	45,097	23
1951	-	17	-	36.85	251	199	461,362	49,977	37
1952	-	16	-	39.44	183	232	405,630	42,531	25
1953	-	9	-	28.07	167	203	320,604	33,819	21
IDAHO									
1943	14	1,501	1.46	156.80	4,054	303	9,572,743	1,226,381	176
1944	3	987	.44	143.64	2,958	298	6,871,245	880,376	143
1945	6	746	1.04	129.52	2,446	296	5,759,688	723,101	132
1946	3	766	.50	128.11	2,782	269	5,979,387	748,998	181
1947	11	1,132	1.26	129.23	3,802	288	8,759,571	1,095,109	291
1948	7	1,181	.79	132.64	3,737	296	8,904,042	1,104,947	233
1949	7	1,238	.85	149.46	4,037	257	8,283,059	1,037,276	208
1950	10	1,350	1.05	142.23	4,168	285	9,491,759	1,188,565	198
1951	4	1,215	.41	125.93	4,285	281	9,647,852	1,205,945	250
1952	11	1,159	1.12	118.25	4,189	292	9,800,872	1,224,643	178
1953	5	1,033	.58	119.24	3,831	283	8,663,422	1,083,624	195
ILLINOIS									
1943	4	142	1.89	67.02	993	266	2,118,844	264,599	53
1944	2	86	1.32	56.90	678	279	1,511,529	188,944	45
1945	2	88	1.60	70.35	571	274	1,250,951	156,369	37
1946	1	120	.76	91.07	626	263	1,317,703	164,714	56
1947	-	85	-	58.59	690	264	1,450,755	182,246	53
1948	-	57	-	43.54	622	263	1,309,249	163,695	43
1949	1	106	.84	88.77	626	238	1,194,104	149,262	42
1950	3	89	2.85	84.66	515	255	1,063,279	131,409	34
1951	-	85	-	72.75	510	286	1,168,140	146,018	11
1952	3	36	3.27	39.27	429	276	910,740	114,425	16
1953	2	72	1.41	52.80	670	266	1,424,974	177,435	30

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Year	Number of injuries		Frequency rates		Average men working daily	Average number of days worked	Man-hours worked	Man-days worked	Number of operations
	Fatal	Nonfatal	Fatal	Nonfatal					
IOWA									
1943	1	18	5.03	90.61	96	259	198,663	24,833	6
1944	1	8	5.28	42.24	81	293	189,383	23,710	5
1945	3	15	17.29	86.46	79	271	173,496	21,411	6
1946	-	8	-	38.57	77	305	207,427	23,513	5
1947	-	9	-	31.09	136	263	289,444	35,782	6
1948	1	7	5.05	35.34	76	301	198,051	22,895	4
1949	-	5	-	19.74	109	288	253,246	31,417	5
1950	-	3	-	11.31	108	305	265,292	32,933	5
1951	-	8	-	27.53	119	305	290,619	36,328	6
1952	-	3	-	10.88	115	300	275,682	34,460	4
1953	-	3	-	11.06	113	300	271,127	33,890	4
KANSAS									
1943	1	310	0.23	70.70	1,978	277	4,384,493	548,147	76
1944	9	327	2.17	78.96	1,737	297	4,141,133	515,848	81
1945	9	369	2.65	108.79	1,515	279	3,391,718	423,243	71
1946	2	238	.62	73.29	1,449	276	3,247,158	400,316	74
1947	3	134	1.43	63.81	1,193	221	2,099,917	263,775	86
1948	-	117	-	67.69	881	245	1,728,489	216,182	61
1949	-	134	-	7.45	792	235	1,476,384	186,028	59
1950	-	87	-	60.24	705	255	1,444,220	179,818	56
1951	2	70	1.40	49.08	663	275	1,426,146	182,045	70
1952	-	78	-	67.94	626	232	1,148,085	145,419	46
1953	2	37	2.75	50.85	486	187	727,672	90,828	40
KENTUCKY									
1943	3	104	1.80	62.39	899	226	1,666,859	203,397	60
1944	3	84	2.14	59.87	734	231	1,403,068	169,920	44
1945	4	77	2.82	54.31	717	236	1,417,809	169,013	72
1946	2	66	1.74	57.39	731	190	1,150,119	138,954	59
1947	-	82	-	60.05	684	240	1,365,496	164,150	35
1948	1	67	.77	51.46	664	238	1,301,907	158,090	29
1949	-	35	-	33.36	589	214	1,049,004	125,787	25
1950	-	29	-	43.74	417	199	663,056	82,862	16
1951	-	29	-	40.30	424	214	719,535	90,919	12
1952	-	33	-	41.00	454	221	804,875	100,383	8
1953	-	32	-	47.00	366	232	680,862	84,900	7
LOUISIANA									
1943	-	27	-	24.20	413	337	1,115,921	139,175	5
1944	1	29	0.82	23.66	441	346	1,225,800	152,675	5
1945	2	50	1.26	31.44	587	337	1,590,459	197,708	6
1946	-	50	-	26.53	687	342	1,884,592	234,880	5
1947	-	81	-	35.65	829	342	2,271,980	283,916	5
1948	1	41	.48	19.56	774	339	2,096,067	262,008	5
1949	-	28	-	16.96	614	336	1,651,339	206,405	5
1950	-	46	-	26.20	650	337	1,755,408	219,228	6
1951	2	62	1.32	41.01	564	335	1,511,966	189,011	6
1952	-	116	-	45.13	924	347	2,570,597	320,971	6
1953	1	156	.30	46.02	1,143	358	3,389,485	408,741	8
MICHIGAN									
1943	36	869	1.33	32.15	11,469	294	27,033,018	3,376,949	68
1944	15	830	.65	36.04	10,348	278	23,029,417	2,878,501	65
1945	9	696	.45	34.49	8,886	284	20,177,144	2,521,439	63
1946	6	592	.41	40.47	8,328	219	14,629,345	1,827,151	57
1947	16	655	.84	34.36	8,649	275	19,063,146	2,382,663	58
1948	15	683	.74	33.85	8,795	287	20,178,028	2,522,805	58
1949	7	586	.42	34.93	8,951	234	16,778,415	2,097,931	56
1950	11	567	.59	30.24	8,966	261	18,747,395	2,341,687	60
1951	7	640	.33	30.24	9,435	280	21,164,569	2,644,035	59
1952	25	490	1.35	26.55	9,217	249	18,457,241	2,297,291	63
1953	7	451	.36	23.04	9,304	263	19,573,010	2,445,024	62

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TABLE 43. - Injury experience and employment data: Metal and nonmetal mines in the United States and Alaska, by States, 1943-53 (con.)

Year	Number of injuries		Frequency rates		Average man working daily	Average number of days worked	Man-hours worked	Man-days worked	Number of operations
	Fatal	Nonfatal	Fatal	Nonfatal					
MINNESOTA									
1943	10	405	0.38	15.24	11,354	293	26,580,666	3,323,519	136
1944	8	303	.35	13.13	10,181	283	23,078,024	2,879,581	132
1945	15	238	.70	11.03	9,699	278	21,581,508	2,696,518	108
1946	7	228	.38	12.52	10,139	224	18,207,952	2,272,026	118
1947	8	241	.35	10.44	10,775	269	23,091,228	2,880,098	132
1948	4	285	.16	11.64	10,645	288	24,493,551	3,060,863	154
1949	5	252	.22	11.06	10,948	260	22,775,068	2,847,522	164
1950	6	292	.23	11.36	11,022	291	25,706,956	3,208,044	177
1951	9	312	.30	10.37	12,889	291	30,092,031	3,744,437	208
1952	4	262	.14	8.93	14,138	259	29,345,471	3,657,596	204
1953	7	319	.22	10.07	13,828	286	31,665,615	3,956,037	213
MISSOURI									
1943	5	428	0.68	58.22	3,387	271	7,351,188	917,002	116
1944	6	440	.84	61.72	3,204	278	7,129,020	890,538	117
1945	5	382	.60	46.18	3,518	293	8,271,334	1,030,571	91
1946	1	360	.13	46.65	3,672	263	7,717,303	964,051	92
1947	6	315	.83	43.71	3,600	250	7,207,321	899,233	90
1948	1	201	.17	33.18	3,661	206	6,057,210	755,802	75
1949	5	175	.78	27.27	3,245	247	6,417,026	801,533	63
1950	2	174	.34	29.15	2,995	249	5,969,230	745,624	49
1951	1	126	.17	21.60	2,878	252	5,833,941	725,663	70
1952	5	161	.77	24.65	3,178	255	6,530,866	810,044	64
1953	2	128	.45	28.94	2,224	246	4,423,520	547,721	35
MONTANA									
1943	27	1,318	1.27	61.85	9,136	292	21,310,433	2,665,837	239
1944	14	958	.91	62.47	6,576	291	15,335,178	1,916,844	197
1945	9	692	.79	60.75	4,920	289	11,390,643	1,424,031	163
1946	14	693	1.33	65.98	4,583	287	10,503,421	1,313,158	223
1947	11	688	.86	53.56	5,659	284	12,844,660	1,605,419	291
1948	10	608	.72	43.83	5,823	298	13,872,527	1,734,857	204
1949	8	560	.64	44.52	6,298	250	12,577,336	1,572,890	219
1950	10	533	.76	40.27	6,130	271	13,234,353	1,659,008	253
1951	13	528	.90	36.37	6,520	277	14,518,511	1,806,376	276
1952	22	504	1.42	32.61	6,453	299	15,453,383	1,931,499	205
1953	14	494	.94	33.01	6,347	294	14,965,341	1,867,598	181
NEVADA									
1943	12	842	1.52	106.77	3,253	303	7,886,293	984,461	226
1944	6	498	1.01	84.06	2,565	288	5,928,084	739,941	200
1945	4	397	.85	84.04	2,036	290	4,724,130	589,619	174
1946	8	623	1.49	115.83	2,416	277	5,378,760	669,523	199
1947	6	590	1.04	101.94	2,627	275	5,787,454	723,468	309
1948	4	469	.62	72.28	2,799	291	6,488,699	813,585	282
1949	-	272	-	57.49	2,496	238	4,731,146	592,996	299
1950	5	391	1.02	79.60	2,305	267	4,911,985	614,915	277
1951	3	504	.56	93.45	2,453	278	5,393,093	681,892	283
1952	4	376	.67	62.70	2,835	251	5,996,412	712,952	245
1953	11	408	1.73	64.31	3,122	256	6,344,173	796,913	249
NEW HAMPSHIRE									
1943	-	22	-	56.69	232	209	388,090	46,913	38
1944	-	16	-	41.66	208	223	384,030	46,482	28
1945	-	6	-	32.26	99	224	185,989	22,146	12
1946	-	17	-	93.21	106	210	187,385	22,209	12
1947	-	19	-	84.81	127	220	224,024	28,001	15
1948	-	12	-	68.52	108	193	175,137	20,810	8
1949	-	8	-	59.57	86	188	134,786	16,176	6
1950	-	4	-	29.49	67	252	135,624	16,886	4
1951 [1]	-	-	-	-	-	-	-	-	-
1952	-	5	-	46.65	53	250	107,177	13,767	3
1953 [1]	-	-	-	-	-	-	-	-	-

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Year	Number of injuries		Frequency rates		Average men working daily	Average number of days worked	Man-hours worked	Man-days worked	Number of operations
	Fatal	Nonfatal	Fatal	Nonfatal					
NEW JERSEY									
1943	2	139	0.65	45.39	1,273	300	3,062,350	382,492	9
1944	4	131	1.65	54.07	1,002	302	2,422,848	302,758	7
1945	4	109	2.09	56.86	786	305	1,916,853	239,607	8
1946	4	136	2.09	70.90	977	238	1,918,188	232,297	7
1947	-	162	-	74.47	1,031	254	2,175,334	262,097	8
1948	1	153	.46	69.81	1,074	255	2,191,600	273,377	8
1949	4	89	1.99	44.31	1,110	220	2,008,514	243,922	9
1950	2	123	.90	55.16	1,207	232	2,229,847	279,888	10
1951	3	127	1.38	58.30	1,055	259	2,178,301	272,754	10
1952	2	113	.97	54.70	986	265	2,065,938	260,906	10
1953	5	137	2.02	55.46	1,134	272	2,470,412	308,478	10
NEW MEXICO									
1943	4	581	0.53	77.21	2,968	317	7,524,476	940,581	117
1944	11	677	1.43	87.82	2,936	328	7,708,775	963,634	77
1945	2	520	.28	73.69	2,762	319	7,056,122	881,902	79
1946	1	492	.14	68.98	2,852	312	7,132,949	888,906	63
1947	6	598	.77	76.66	3,192	306	7,800,621	976,302	104
1948	4	652	.51	82.56	3,354	294	7,897,403	987,523	94
1949	7	482	.96	66.44	3,518	258	7,254,267	906,858	100
1950	4	397	.57	57.02	2,924	305	6,962,682	891,167	99
1951	6	621	.72	75.00	3,224	321	8,280,123	1,034,962	125
1952	3	678	.32	73.23	3,813	304	9,258,046	1,157,391	106
1953	2	542	.24	66.20	3,561	287	8,187,112	1,022,969	172
NEW YORK									
1943	4	250	0.73	45.74	2,160	310	5,465,466	670,410	31
1944	7	213	1.49	45.45	1,942	300	4,686,613	582,366	33
1945	4	243	.97	59.22	1,691	301	4,103,487	509,211	34
1946	6	229	1.70	64.81	1,841	235	3,533,617	432,880	33
1947	7	253	1.36	49.19	2,123	301	5,143,506	638,612	32
1948	4	259	.71	45.77	2,316	303	5,659,302	701,842	32
1949	6	222	1.26	46.70	2,289	259	4,753,362	593,569	29
1950	7	222	1.55	49.03	2,035	274	4,528,003	558,087	31
1951	8	160	1.70	33.95	1,932	302	4,712,998	582,624	20
1952	3	150	.63	31.65	2,209	264	4,738,632	583,353	19
1953	2	192	.39	36.99	2,237	286	5,165,672	638,901	25
NORTH CAROLINA									
1943	3	118	1.73	67.94	1,228	174	1,736,941	214,009	210
1944	2	60	1.74	52.31	877	155	1,147,018	136,354	174
1945	-	62	-	67.61	487	224	916,998	109,256	64
1946	1	64	1.03	65.95	475	247	970,397	117,502	53
1947	2	102	1.49	76.21	649	254	1,338,342	164,604	58
1948	1	68	1.16	79.10	438	239	859,634	104,542	43
1949	-	102	-	133.70	414	227	762,895	93,929	41
1950	3	91	3.47	105.28	425	247	864,330	104,968	46
1951	1	135	.82	110.99	589	254	1,216,366	149,435	42
1952	1	173	.71	122.36	729	239	1,413,872	173,868	65
1953	-	142	-	85.64	784	263	1,658,113	206,203	52
OKLAHOMA									
1943	7	392	1.01	56.42	3,171	274	6,947,576	868,651	112
1944	5	416	.98	81.54	2,318	276	5,102,069	640,005	99
1945	3	307	.75	77.12	1,831	272	3,980,956	498,318	82
1946	4	296	.94	69.58	2,079	257	4,253,935	535,066	85
1947	1	185	.32	59.45	1,630	239	3,112,004	388,953	91
1948	2	135	.85	57.47	1,214	242	2,348,884	293,278	92
1949	1	109	.48	51.80	1,156	228	2,104,257	263,204	96
1950	3	121	1.48	59.72	942	269	2,026,041	253,459	78
1951	1	53	.85	45.20	550	266	1,172,650	146,092	68
1952	2	50	.92	22.89	1,028	266	2,184,389	272,966	91
1953	2	43	1.68	36.17	827	177	1,188,676	146,374	67

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TABLE 43. - Injury experience and employment data: Metal and nonmetal mines in the United States and Alaska, by States, 1943-53 (con.)

Year	Number of injuries		Frequency rates		Average men working daily	Average number of days worked	Man-hours worked	Man-days worked	Number of operations
	Fatal	Nonfatal	Fatal	Nonfatal					
OREGON									
1943	-	36	-	100.76	227	197	357,288	44,624	72
1944	-	22	-	70.90	155	251	310,302	38,912	41
1945	-	13	-	59.25	156	176	219,401	27,486	41
1946	-	27	-	57.64	275	212	468,395	58,243	67
1947	-	15	-	33.43	278	201	448,752	55,918	106
1948	-	19	-	57.24	218	190	331,962	41,407	69
1949	1	13	3.24	42.11	200	193	308,699	38,552	68
1950	-	8	-	33.68	196	152	237,527	29,755	73
1951	-	17	-	80.09	167	159	212,269	26,551	72
1952	-	3	-	15.01	159	157	199,901	24,987	74
1953	-	2	-	10.66	185	127	187,692	23,475	96
PENNSYLVANIA									
1943	1	42	0.70	29.48	497	350	1,424,667	173,816	12
1944	2	25	1.73	21.57	477	304	1,159,214	144,947	10
1945	-	15	-	15.68	421	284	956,330	119,473	9
1946	1	17	1.09	18.57	497	226	915,636	112,559	7
1947	-	19	-	18.66	501	254	1,018,388	127,302	7
1948	1	8	.82	6.57	513	261	1,217,643	144,214	5
1949	-	15	-	13.82	497	263	1,085,702	130,629	6
1950	1	26	.84	21.86	530	276	1,189,605	146,304	6
1951	2	39	1.39	27.10	611	294	1,439,160	179,895	6
1952 1/	-	-	-	-	-	-	-	-	-
1953	1	16	.78	12.42	649	248	1,288,632	161,079	4
SOUTH DAKOTA									
1943	2	53	2.66	70.36	487	202	753,263	98,442	71
1944	-	36	-	70.96	251	242	507,323	60,862	63
1945	-	58	-	18.97	1,243	343	3,057,517	426,756	30
1946	3	190	1.59	100.95	881	291	1,882,209	256,152	39
1947	3	207	1.60	110.29	872	297	1,876,870	258,731	27
1948	2	232	1.07	124.05	941	274	1,870,169	257,854	22
1949	3	376	1.28	160.10	948	347	2,348,494	328,531	24
1950	2	361	.77	139.83	1,188	303	2,581,710	360,291	27
1951	3	244	1.50	122,14	986	295	1,997,696	278,654	41
1952	2	235	.89	104.81	962	296	2,242,230	284,941	45
1953	1	246	.40	99.14	1,051	295	2,481,394	310,289	66
TENNESSEE									
1943	12	163	2.56	34.84	2,000	287	4,679,075	574,752	43
1944	1	118	.25	29.30	1,639	303	4,027,620	497,372	27
1945	1	85	.30	25.50	1,384	300	3,333,670	414,584	27
1946	1	88	.30	26.52	1,593	259	3,317,887	412,162	29
1947	5	61	1.39	16.90	1,624	276	3,608,792	449,021	30
1948	-	59	-	17.09	1,608	268	3,451,547	430,718	27
1949	3	31	.98	10.17	1,471	259	3,049,418	380,490	27
1950	-	30	-	9.79	1,463	261	3,063,465	381,936	25
1951	5	30	1.53	9.19	1,502	270	3,264,844	405,887	26
1952	3	24	.93	7.47	1,499	268	3,214,648	401,108	23
1953	1	24	.36	8.56	1,506	232	2,802,359	349,444	30
TEXAS									
1943	2	167	0.51	42.45	1,445	336	3,933,781	485,941	40
1944	2	187	.52	49.03	1,422	334	3,814,143	471,915	31
1945	-	158	-	40.03	1,467	334	3,946,589	490,517	32
1946	-	109	-	27.38	1,430	347	3,981,562	496,168	26
1947	3	159	.73	38.50	1,549	332	4,129,956	513,881	29
1948	-	143	-	29.63	1,804	333	4,825,733	600,370	25
1949	-	176	-	38.70	1,713	330	4,547,401	565,079	26
1950	2	209	.43	42.58	1,798	339	4,908,496	609,504	27
1951	1	211	.20	41.67	1,843	343	5,063,117	629,177	24
1952	1	216	.19	41.44	1,929	336	5,212,687	649,040	31
1953	-	297	-	52.59	1,817	342	4,984,137	621,029	21

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Year	Number of injuries		Frequency rates		Average men working daily	Average number of days worked	Man-hours worked	Man-days worked	Number of operations
	Fatal	Nonfatal	Fatal	Nonfatal					
UTAH									
1943	11	925	0.74	62.29	5,794	320	14,849,116	1,856,555	204
1944	8	645	.69	55.62	4,583	316	11,595,541	1,450,028	130
1945	6	556	.64	59.07	3,656	322	9,412,976	1,175,570	105
1946	11	526	1.50	71.69	3,947	232	7,336,711	917,344	125
1947	10	584	.87	50.53	4,585	315	11,557,363	1,445,545	146
1948	14	506	1.18	42.79	4,926	300	11,824,633	1,477,602	121
1949	5	372	.48	36.05	4,792	269	10,319,005	1,289,009	137
1950	8	264	.78	25.69	4,334	296	10,274,953	1,284,471	117
1951	9	360	.80	32.14	4,503	310	11,202,355	1,397,470	128
1952	4	306	.37	27.97	4,302	318	10,941,190	1,366,735	92
1953	17	297	1.59	27.74	4,347	308	10,705,481	1,338,051	126
VERMONT									
1943	2	24	12.19	146.27	70	268	164,085	18,756	6
1944	-	33	-	120.80	99	301	273,174	29,755	6
1945	-	16	-	66.52	95	277	240,532	26,317	6
1946	1	23	2.88	66.25	145	286	347,154	41,406	6
1947	-	35	-	85.94	173	283	407,246	48,883	6
1948	-	28	-	65.89	173	296	424,954	51,206	6
1949	-	27	-	55.58	202	294	485,744	59,374	6
1950	2	33	4.35	71.82	189	298	459,461	56,233	6
1951	-	13	-	42.36	124	302	306,892	37,472	5
1952	-	20	-	56.57	130	332	353,539	43,170	6
1953	-	67	-	84.58	331	293	792,131	97,037	9
VIRGINIA									
1943	1	73	.47	34.02	998	265	2,146,084	264,651	49
1944	-	122	-	60.60	872	287	2,013,217	250,526	41
1945	-	50	-	29.17	750	279	1,713,903	208,879	25
1946	-	104	-	59.88	757	283	1,736,831	214,342	23
1947	-	98	-	58.43	786	258	1,677,315	202,600	22
1948	-	90	-	60.79	633	285	1,480,552	180,508	19
1949	-	65	-	47.88	607	275	1,357,473	167,160	20
1950	-	54	-	43.06	602	261	1,254,009	156,935	17
1951	-	43	-	48.89	514	214	879,468	109,913	8
1952	1	74	.77	56.61	605	283	1,307,100	170,970	9
1953	-	85	-	57.56	648	276	1,476,324	178,926	10
WASHINGTON									
1943	3	129	1.46	62.68	797	323	2,058,226	257,281	42
1944	3	115	2.15	82.41	547	319	1,395,432	174,553	35
1945	1	86	.82	70.39	525	291	1,221,811	152,652	37
1946	3	125	2.49	103.91	547	275	1,203,020	150,250	45
1947	3	204	1.93	131.03	691	282	1,556,876	194,626	54
1948	5	184	2.93	107.73	826	257	1,708,040	212,174	50
1949	1	191	.62	117.81	934	217	1,621,196	202,693	49
1950	2	181	1.04	94.42	846	283	1,916,929	239,654	52
1951	4	208	2.15	111.58	812	290	1,864,150	235,117	41
1952	2	192	1.26	120.79	678	293	1,589,489	198,704	45
1953	2	204	1.24	126.77	696	289	1,609,158	201,142	41
WISCONSIN									
1943	8	150	2.84	53.19	1,266	278	2,820,272	352,214	37
1944	2	175	.72	62.94	1,237	280	2,780,253	346,711	44
1945	1	168	.38	64.20	1,120	293	2,616,785	327,724	37
1946	1	155	.43	67.02	1,267	228	2,312,686	289,089	41
1947	2	119	.78	46.58	1,186	269	2,554,849	319,355	39
1948	2	80	.90	35.85	1,020	273	2,231,693	278,962	20
1949	-	80	-	38.25	1,102	237	2,091,596	261,451	24
1950	-	114	-	46.25	1,158	265	2,465,096	306,887	11
1951	3	119	1.05	41.65	1,276	280	2,856,915	357,114	26
1952	1	140	.38	52.54	1,386	241	2,664,721	334,139	38
1953	-	136	-	49.44	1,347	255	2,750,947	343,467	34

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TABLE 43. - Injury experience and employment data: Metal and nonmetal mines in the United States and Alaska, by States, 1943-53 (con.)

Year	Number of injuries		Frequency rates		Average men working daily	Average number of days worked	Man-hours worked	Man-days worked	Number of operations
	Fatal	Nonfatal	Fatal	Nonfatal					
WYOMING									
1943	-	100	-	138.70	306	293	720,981	89,666	8
1944	-	62	-	101.73	268	283	609,482	75,732	10
1945	-	52	-	109.02	212	280	476,990	59,352	8
1946	-	65	-	137.49	231	255	472,762	58,850	9
1947	-	81	-	119.93	291	290	675,402	84,309	14
1948	1	97	1.30	126.11	324	296	769,183	95,961	10
1949	-	85	-	165.40	287	230	513,902	65,927	9
1950	1	71	1.58	112.38	348	240	631,773	83,472	7
1951	1	69	1.35	92.92	328	275	742,551	90,119	5
1952	-	53	-	90.78	322	277	583,804	72,975	3
1953	1	88	1.12	98.22	427	262	895,993	111,958	9
OTHER STATES 1/									
1943	2	27	2.64	35.60	390	228	758,493	89,006	55
1944	-	26	-	59.11	228	233	439,870	53,095	35
1945	-	24	-	69.81	187	221	343,807	41,383	31
1946	-	23	-	52.64	219	237	436,922	51,917	27
1947	-	27	-	65.63	203	246	411,405	49,965	26
1948	-	28	-	65.55	214	241	427,139	51,608	24
1949	-	23	-	57.08	236	207	402,955	48,888	27
1950	-	12	-	30.77	218	215	390,034	46,929	30
1951	1	22	2.86	62.82	193	220	350,198	42,418	24
1952	-	62	-	32.78	725	325	1,891,290	235,611	16
1953	1	17	4.32	44.91	181	260	378,527	46,992	22
ALL STATES									
1943	220	13,004	.94	55.52	100,593	290	234,240,893	29,216,048	3,959
1944	147	10,177	.78	53.91	81,674	288	188,786,844	23,521,772	3,357
1945	112	8,067	.68	48.62	71,665	289	165,908,259	20,688,791	2,725
1946	116	8,714	.74	55.40	76,546	255	157,282,937	19,534,629	3,174
1947	138	9,601	.74	51.66	83,404	277	185,833,522	23,121,886	3,735
1948	119	8,807	.63	46.52	83,386	283	189,300,254	23,556,636	3,169
1949	79	8,065	.46	47.08	83,741	256	171,316,256	21,407,270	3,193
1950	103	7,849	.58	44.54	80,269	275	176,220,617	22,034,189	3,120
1951	112	8,175	.59	43.13	84,103	281	189,547,732	23,642,139	3,303
1952	131	7,855	.70	41.87	87,073	268	187,602,968	23,358,546	3,244
1953	114	7,583	.61	40.53	85,294	273	187,093,067	23,286,550	3,369

1/ Includes Connecticut, Delaware, Maine, Maryland, Massachusetts, Mississippi, Nebraska, New Hampshire, North Dakota, Ohio, Pennsylvania (1952 only), Rhode Island, South Carolina, and West Virginia.

Int.--Bu. of Mines, Pgh., Pa. 8550

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